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FORETHOUGHT AND AFTERTHOUGHT.

ANY close observer of the different ways in which architects obtain their results in outward visible form cannot fail to be struck with the fact that many of them are able to conceive their buildings, even to the smallest detail, at the beginning and before contracts are made; while others either cannot or will not do so, and refuse to be bound by their first conceptions, but labour without ceasing to perfect and embellish and improve them.

Allowing for those who accept their commission as a business, and do not take themselves so seriously where artistic considerations are involved, the same differences are found to exist even among acknowledged artists; and it is a matter of profound interest to students and others to consider which of the two methods tends to produce the best results.

All the best architects know that fine work can only be produced after much prayer and fasting, and that conscientious thought on every detail is never wasted; but we are not convinced that wholesale changes of intention such as one frequently sees are wise. We think they are often destructive of that unity in design without which no building can be truly great. The scale of the whole is apt to be forgotten in the mass of small details.

We know actual instances in which the finished work has been rather spoiled than improved by the constant additions of features or capricious alterations of details until the original design became unrecognisable—a method of working which is specially characteristic of younger architects, for whom the temptation of working out new variations of the original theme is too great, and, their zeal exceeding their discretion, they incontinently fall. We are not advocating a rigid adhesion to first intentions, but merely deprecating the practice of alteration for the sake of alteration.

Some will say it is impossible to devise an entire project, complete in all its parts, from the outset; that a design must grow and be moulded and remoulded in its various features until it approaches perfection. This argues experiment and suggests inexperience, which are only excusable where some entirely fresh problem presents itself.

The question is rather an intimate one affecting the individual method of working, and it is in no carping spirit that we raise it. The main object of these comments is not so much to indicate a weakness as to state the case in favour of sufficient forethought, and, having done that, to indicate in those rare cases in which afterthought is admitted to be necessary or desirable in what way the ordinary procedure should be varied to meet the altered conditions.

We are not referring to such changes as may be made in developing a winning competition design, as it rarely happens that such designs are hammered out with the same thoroughness as a set of contract drawings; nor to cases in which practical considerations dictate a change in the original intention, as in the case of Liverpool Cathedral, where the authorities decided, in the interests of congregational worship, that a large central space was an essential, and required the substitution of a central spire for the twin spires originally contemplated, although even here we think the architect must have been out of touch with his bishop not to have foreseen this. What we refer to chiefly are those cases where an architect has a free hand, ample time, and a clear knowledge of the requirements.

The matter concerns not only architects but also their employers, for under the system of contracting in vogue to-day they usually have to pay more for their buildings when employing the architect who hesitates and alters than when employing a man so decided that he can see clearly at the outset—or thinks he can—what is wanted.

No wise client would demur, however, to the close and thoughtful reconsideration of every detail which many men give—necessarily, be it said, at considerable sacrifice to themselves—provided they are satisfied that they will get a finer building. But suppose, for the sake of argument, we admit that the mediæval practice of feeling one's way although a building should be, in the end, the most satis factory—and possibly for some temperaments it is so—we are then brought face to face with the problem of competition—whether the customary tenders from many builders, by which the lowest bidder is employed, are conducive to the best work among the artisans, or whether, in such cases, some other procedure is not more feasible. Unfortunately the business of a building contractor compels him to treat the whole transaction as a matter of business, in which he must realise a profit out of what is usually a close estimate.

The alternative is recommended by some to advise the employer to dispense with the contractor and employ his own labour and buy his own materials. This avoids all questions of extras and alterations, and gives the architect entire freedom to change as much as he likes; but, unfortunately, the question of cost has to be considered.

The objections to this plan are:—

1. That it is not possible to fix definitely at the outset the total amount to be expended.

2. That no agent can usually buy materials as cheaply as a contractor, and therefore the cost of building would be increased.

3. That human nature is such that, as soon as the men discover they are working on daywork, they slacken their efforts and do less work, and again the cost is increased.

The first point amounts to this—that it should be quite as easy for an architect to calculate the cost of a scheme in embryo so as to estimate how much to allow for the extras likely to be incurred upon an estimate based upon the embryo design. He should consult a surveyor, and have it clearly laid down what is included and if strict limits of expenditure are imposed; he should not embark upon great changes unless sanctioned by the surveyor who advised in the first instance.

To meet the second point, instructions should be given that no materials are to be bought without the sanction of the architect's agent, who should have had experience in the market. It is not reasonable to buy material from builders' stock unless previously inspected, as in that way rejected materials, or materials upon which excessive waste was incurred, might find their way into the bill.

The third difficulty is a real one, and not so easy to overcome. The entire discharge of one set of men and the employment of another set would produce no better result. Where no check is applied, human nature will skulk—consciously at first and afterwards unconsciously—and this is far worse than the qualified limitation of output which goes on against a builder even where there is a contract.

Architects who decline to be bound to contract plans and specifications may imagine that they are working in the manner of the great artists of the past, but in reality they are only setting themselves at variance with what is an ordinary and convenient custom which enables their employers to know definitely at the outset what pecuniary responsibilities they are undertaking, and all that is gained is a slightly greater freedom from the necessity to think out a problem clearly and logically as a whole. If, despite the objections we have enumerated, architects wish to be free to follow their bent all through they should get together a few trade foremen and let them engage a staff of workmen to whom they should explain that so long as they work well they will be sure of permanent employment. A surveyor should then periodically check their work and report on progress. If a case against any man be established he should be warned; if another, he should be discharged.

By this means the architect would get together a school of men who knew his methods and would be sure of good building at normal cost.

NOTES.

State Discouragement of Building.

IT is reported that Mr. Hooper, the Chief Inspector of the Local Government Board, declared at a recent inquiry that the Local Government Board, in conjunction with the Treasury, had decided to allow no expenditure during the war unless such expenditure was needed to enable work to be done to carry out Government contracts. Expenditure for ordinary developments, he added, must be suspended, as borrowing powers would not be granted for them. If this announcement is to be taken as indicating the definite policy of the Government, it opens up a prospect which demands the most serious attention from architects, builders, and all dependent on the building industry. But in that case we should have thought that so serious and important a step would have been formally and officially announced on behalf of the Government and not just left to be referred to casually by an inspector of the Local Government Board, or that official intimation might have been sent to the representative societies of both architects and builders. In the same connection we have reason to believe that the Treasury is exercising its powers to discourage the raising of capital by private Corporations for building purposes. We quite realise that it may be necessary to divert the whole of the available capital of the country to the purposes of the war, and we are sure that all those engaged in the building trade will be willing to bear their share—or more than their share, if necessary—of the sacrifice entailed, but they may be expected to ask whether other industries not directly connected with the production of war materials have been treated in the same way, and if not, why not? If it is found advisable to prevent capital being employed in the usual industries of the country, it surely would be reasonable to make a start with those trades which employ the maximum of capital and the minimum of labour, and we doubt whether the building industry is one of them.

"Art and the Beauty of the Earth."

ONE could not fail to be struck in listening to Mr. Baillie Scott's second Cantor Lecture at the Royal Society of Arts with the identity of his views with those of William Morris in the essay he once published under this title. The same jeremiads over the lost craftsmanship of the Middle Ages, and the same glorification of the ancient Guilds and their aims. Morris said, "The greatest blessing God ever gave man was the power of taking a pleasure in his work," and that until everyone learnt to use their hands and to exercise their creative instinct in producing worthy objects art would never flourish. Mr. Scott says, "Until our workmen are able to take a joy in creative work we shall create nothing in architecture worthy of the name," and he hopes, when we can once more give our minds to the arts of peace, that the old organisations may be renewed. He wants every building to be a human document with its walls breathing out healing virtue. He thinks art manifests itself primarily in building, and that painting and sculpture are only accessory, and would like to see all these bound together in the service of life, and not divorced from it as he thinks they are to-day. The three main phases of building were the craftsman period up to the time of the Renaissance, the scholar period from that time till the end of the eighteenth century, and the shopkeeper period after that time. He did not agree that the first was a dark age, but rather the full daytime—when man expressed himself in a universal language which, by his work, conveyed his ideals to all who looked upon it. In the next period the professors lost the spirit and cherished the forms only, devising rooms in the Tudor, Jacobean, or any other style, and retailing quaint variations on the old themes—a practice very useful for museums, but not for houses where it became nothing but an affectation. The last phase brought the commercial ideals into prominence, and brought out the speculating builder, and drove the craftsman into other fields of activity. He thought the secret of the mystery of good craftsmanship was to be found in allowing every material used the full expression of its character, and in giving all buildings the logical expression of their requirements. With all of this we entirely agree. We remember G. F. Watts's definition of art as being "Unconscious worship," and this is the spirit which we think prevailed in the craftsman days. Everything now is self-conscious and eclectic. We need not despair, for the process of education consists in that very thing. First the unconscious experimenter becomes self-conscious, and then by teaching and habit he performs unconsciously the functions at which before he laboured arduously. But with sympathy and understanding there comes the later stage in which the spell of unconscious volition is renewed, and when this happens the benefit of all the tradition and precedent got together in former days will show itself.

Future Prospects.

IT is gratifying to learn that the War Relief Exhibition at the Royal Academy which was organised by the co-operation of the leading artistic societies has proved a decided success, and that some £4,000 will be available for benevolent purposes. It will be remembered that works were contributed on the understanding that one-third of the proceeds of sales should be retained by the artists and that the other two-thirds should be divided between the Artists' General Benevolent Institution and the Red Cross and St. John's Ambulance. Over £5,600 has been raised by the sale of exhibited works, but the two-third share of this sum has been augmented by the generosity of exhibitors who have contributed their share of the proceeds. We congratulate our brethren of the allied arts on the result of their efforts. Unfortunately, it is not possible for architects to achieve a like result by contributing their work on the same terms. Whatever they contribute to the national funds, or towards the relief of distress in their own profession, must be given in that hard cash which is necessarily scarce at the present moment. No doubt architects as a whole have contributed according to their means, and to their ideas of the need for contributions. Fortunately, there is as yet no evidence of any widespread distress in the profession, though the Architects' War Committee appears to anticipate worse conditions in the future. We are still inclined to take an optimistic view of future prospects, but if the Government finds it necessary to continue its policy of refusing loans for buildings and diverting capital from building enterprises, we must confess that the outlook will not be improved for those engaged in public work or in large commercial buildings. Doubtless the War Committee will carefully consider this aspect of the matter with a view to being prepared for all possible eventualities. It seems evident that, taking the trade of the country as a whole, the war has brought prosperity to some trades and adversity to others.

Antwerp.

THE third of the course of Carpenters' Company lectures at University College was held on March 18, when M. Alfred Portielje, Hon. Secretary Royal Society of Architects, Antwerp, read a paper, in English, on "Town Planning in Antwerp, Past and Future." As far as the past is concerned, M. Portielje confined himself mainly again to an historical survey of the growth of the town. He pointed out that Antwerp is, above all, a commercial city, with one of the finest harbours in Northern Europe, and reached the zenith of prosperity in the sixteenth century, whilst the seventeenth century saw the town at its artistic height. A castle built about A.D. 640 close to the banks of the River Scheldt formed the central point around which the earliest settlement grew. As the latter expanded the houses were largely built on ground won from the river, and for centuries the constructors were hampered by the rivers and canals and by the existing fortifications. In fact, any enlargement on a big scale was a serious matter, as it meant disturbing and reconstructing the walls and forts. These have, of course, always played an exceedingly important part in the history of the town, and the lecturer mentioned that Albrecht Dürer was consulted with reference to them in 1510, whilst an Italian military architect, Donato, remodelled them in 1540. The cathedral church of Notre Dame was commenced in 1322, and its beauty is too well known to require emphasising. The tower was completed as far as the first stage in 1434, the upper portion, the spire, being of a later and more flamboyant period. M. Portielje illustrated by slides the lines the fortifications followed at various times, and the way Napoleon intended to deal with this problem. During the nineteenth century many modern improvements were undertaken, mostly from the designs of the engineer Von Weber, including docks and dry docks. In the second half of the century a fine avenue was constructed along the line taken up formerly by the city walls, and the park and quays were laid out. The lecturer showed some slides of public buildings in the Renaissance period, amongst which were the Porte Impérial, the Flemish theatre, and the Athenæum. Turning to the future, M. Portielje gave particulars of a Town Planning Competition held in 1910, and explained the slides he was able to show. The winning design, which, no doubt, will eventually be carried out, was by a French architect. The problem set dealt mainly with the outskirts of the town, but also with the old part of the city along the river frontage. Here a promenade, accessible also to carriage traffic, is to be provided, with a Casino adjoining. The second design appears to have been on rather an unnecessarily extravagant scale. In contrast to a previous lecturer, M. Portielje expressed the hope that Belgium would be rebuilt with its own means and Belgian energy.

The Carpenters' Hall Lectures.

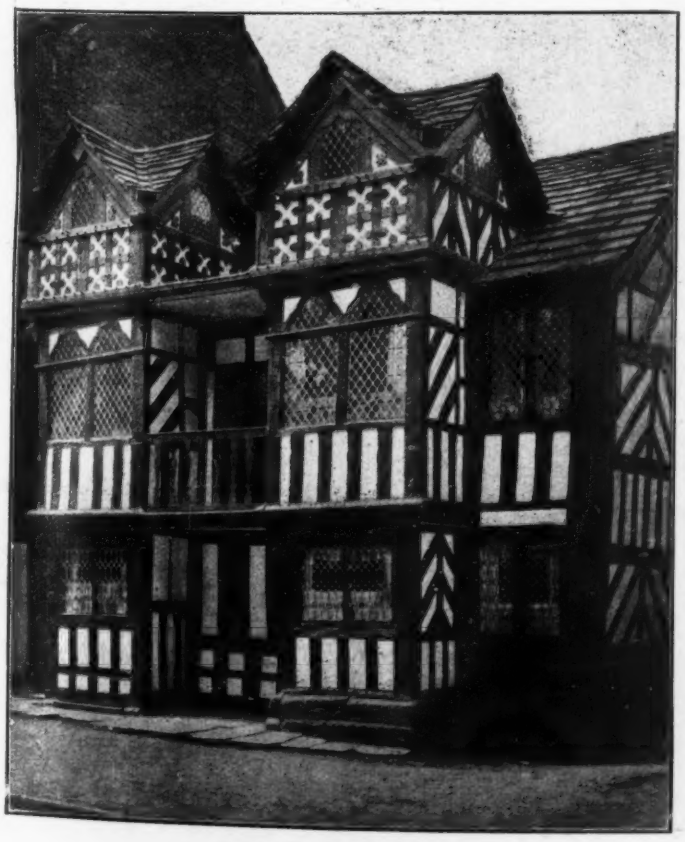
ON Wednesday, March 17, Mr. Banister Fletcher gave an interesting lecture on "Reims Cathedral," which was greatly appreciated by a large audience. The lecturer showed a very comprehensive collection of slides, including a great number illustrating the immense damage inflicted by the recent bombardment, which can be divided into two categories, irreplaceable damage and structural damage which can be readily repaired by the expenditure of money and labour. The worst feature is the destruction of the thirteenth-century glass which can never be replaced and which may be said to have been the most priceless possession of the cathedral, and the defacement and destruction of the sculptures which, like the glass, is final and irrevocable, although enough will probably remain to show future generations what has been lost. We are not inclined to look upon damage done to vaults and the destruction of the roof as very vital, since modern science is sufficient to replace both in their original strength and position, and the thorough overhauling which the structure will receive will probably reveal weakness which will be rectified, and which will leave to future generations a building better safeguarded against the ravages of time than would otherwise be the case. Out of evil frequently arises good, though it may be of a minor category, and the attention drawn to Reims by recent events will tend to make the general public both here and in France alive to the importance of the great monuments of the past in our midst, of which we may be said to be custodians for our future descendants rather than present owners.

A detail photograph of a portion of Bramhall Hall, in Cheshire, showing beautiful Oriel Window.

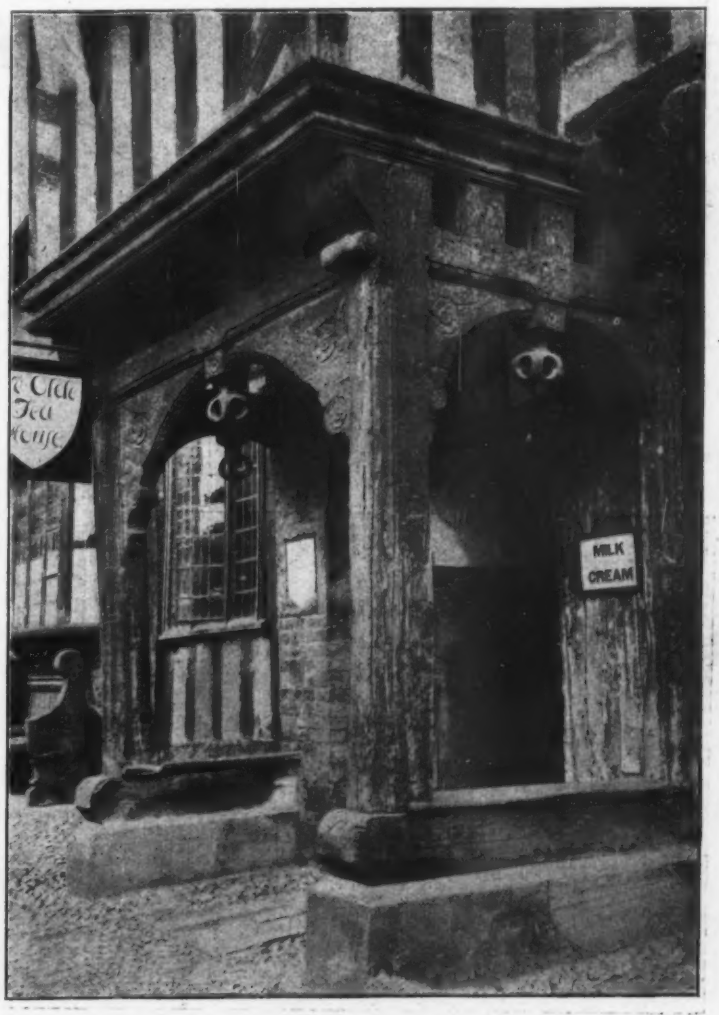
Corner Post on "Magpie" at Ipswich.

ANCIENT "MAGPIES": QUAINT EXAMPLES OF ENGLISH DOMESTIC ARCHITECTURE.

THE oak-timbered dwellings of our forefathers were coeval with the "Wooden Walls of England," and it is to be regretted that they are fast disappearing in the devastating march of modern improvement. Many of these quaint "Magpies" date back to the commencement of the fourteenth century, at which period the districts in which they stand were covered with extensive forests, the wood from which, being the cheapest and handiest material available, was utilised in the construction of cottage and mansion. Nothing catches the eye of the traveller so readily as the beautiful chequered fronts of these ancient "Magpies." Bars vertical and horizontal, angles and curves mingle curiously, but always elegantly, with numerous gables breaking the sky-line. In the cottage the chequerwork is generally of simple and primitive design, but in the more pretentious buildings the external decoration is of the most varied and elaborate description. It is said that when these buildings were erected the builder had

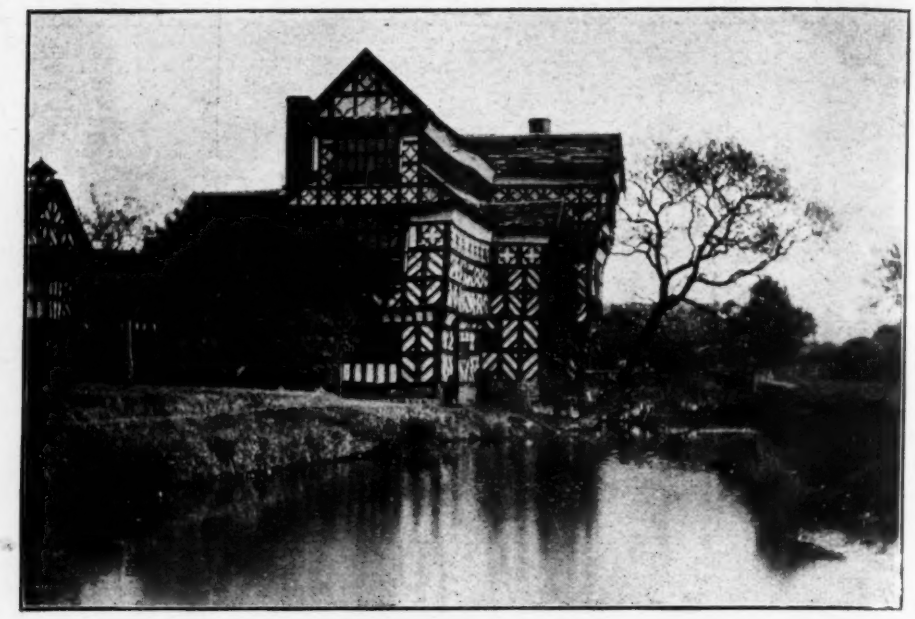


The Priest's House, Prestbury.



Quaint Elizabethan Doorway at Warwick.

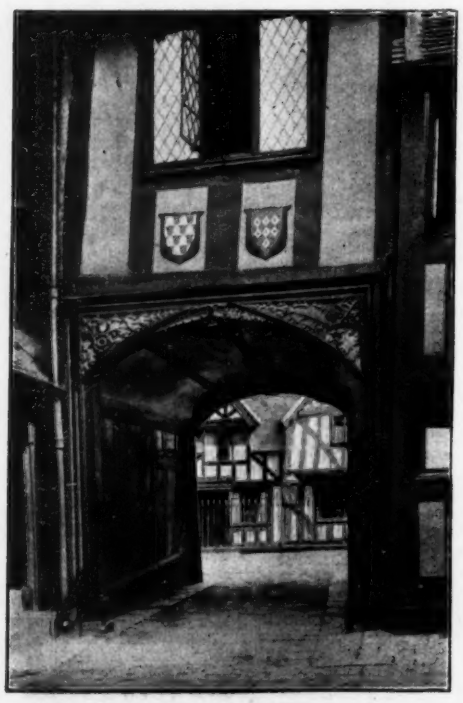
The Oldest House in Chester.



Moreton Old Hall and Moat.

no preconceived plan for carrying out the work. This was more especially the case so far as the decoration of the exterior was concerned, which appears to have been elaborated as the building progressed, and to this fact the diversified methods in design and ornamentation may be attributed. The houses were invariably well and substantially built, and they have withstood the ravages of time and tempest remarkably well, outliving many of the structures of later times. During violent gales of wind, which have wrecked many a homestead, these old "magpies," in the words of an occupant, "never flinched an inch." They were, however, not constructed in a style suited to the requirements of the more luxuriant tastes of the twentieth century, and in numerous instances the descendants of ancient families have forsaken their ancestral homes and built for themselves mansions more up to date, leaving the old halls to be occupied as farmhouses. There are, however, exceptions, such as Bramhall Hall, in Cheshire, and others in different parts of the country. Cheshire and Lancashire are prolific in these old "magpies," and so are Warwickshire, Shropshire, Herefordshire, etc. The finest example in England is undoubtedly Moreton Old Hall, a few miles south of Congleton, whilst the birthplace of the Bard of Avon, the Mecca of all Englishmen, may be regarded as of the greatest interest. The specimens to be found in the town of Warwick are all excellent, but the palm must be awarded to the beautiful block of buildings in the High-street, known as the Leycester Hospital. A study of the detail of many of these oak-timbered dwellings is full of interest, revealing many architectural features unseen by the casual observer. The beautiful oriel window at Bramhall is a case in point (see previous page), and the old corner posts to be seen at Ipswich and elsewhere are other features of half-timbered dwellings which too frequently escape the eye of the visitor.

The "Magpie" style is frequently utilised in modern work, but it is regrettable that more care is not taken to approximate more closely to the originals, both as regards design and the elaboration of chequered fronts and gables.



Gateway: Leycester Hospital, Warwick.

The Doorway of Kersal Cell, around which the Choristers from Manchester Parish Church first sang "Christians Awake."

Detail in front of Harvard House, Stratford-on-Avon.

Old Houses at Warwick.

WIND PRESSURE.*

It may be said that our knowledge of wind pressure extends backwards only so far as the destruction of the original Tay Bridge in 1879. This bridge was part of the scheme for bridging the two firths—Forth and Tay—which was brought to a successful completion by the construction of a new Tay Bridge and the erection of the Forth Bridge; the latter, by the way, has been opened for traffic for twenty-five years.

On December 28, 1879, whilst a train was on the bridge and a "gale of exceptional severity was blowing" one or more of the piers gave way, bringing down eleven 245-ft. span and 227-ft. span girders, precipitating the train and seventy-four people into the Tay. A Board of Trade inquiry was held, which showed that opinion among engineers about wind pressure was in a state of chaos. An endeavour was at once made by a Board of Trade Committee to put matters on a satisfactory footing. After examining wind records, they, on May 20, 1881, recommended:—

"That for railway bridges or viaducts a maximum wind pressure of 56 lb. per square foot should be assumed for the purpose of calculation."

This immediately came into force for railway work, and was also adopted generally for structures on public works, although such adoption was purely arbitrary or specified in local by-laws.

Much opposition was raised to this standard of pressure, because it was considered excessive and not justified by experience of existing structures. As far as buildings are concerned, the horizontal pressure assumed for designing has gradually been reduced to the 30 lb. per square foot now often taken.

Two questions of great importance arose, and these have since been practically settled by research, viz.:—

(*a*) Were the wind velocities given by the anemometers then in use, correct?

(*b*) What was the relation of wind velocity to wind pressure?

There are three methods for the measurement of wind:—

1. Velocity measured by the Robinson anemometer.

2. Pressure measured by a pressure tube anemometer.

3. Pressure measured by a plate or board set face to the wind.

Considering (1); the anemometer that bears his name was invented by Dr. Robinson in 1846, and is by far the most-used of the various instruments which have been produced from time to time. It consists of four arms at right angles; at the end of each arm is a hemispherical cup. This instrument measures direct velocity, and Dr. Robinson, after experimenting, stated that the velocity of the cups was one-third the velocity of wind for all instruments, whatever their size. This is now known to be a fallacy, with the result that practically all records prior to 1902 were incorrect and generally much too high—a fact which justifies the distrust shown by the experts at the Tay Bridge inquiry respecting the records quoted then.

The discovery that the factor 3 for the Robinson anemometer was incorrect is due to the experiments carried out by Mr. Dines, and since confirmed by other authorities.

These experiments consisted of placing anemometers on horizontal arms, which were rotated by means of a steam engine; fourteen and a half revolutions of this "whirler" constituted ½ mile of space; whilst great care was taken to ensure accuracy in the results. The number of turns of the whirler and the revolutions of the anemometers, both of which were counted automatically, determined the relation between the distance travelled and the revolutions of the anemometers, and thus the value of the new factor, 2.2, was obtained.

The outcome was that the Wind Force Committee of the Royal Meterological Society in 1902 adopted the factor 2.2 instead of 3 for the standard Robinson anemometer. Thus, when the old factor was used, and the instrument indicted, say, a velocity of 60 miles per hour, the use of the new factor reduced the velocity to 44 miles per hour. Converting these velocities into pressures by the formula $P = 0.003\ V^2$, the 60 miles per hour velocity gives 10.8 lb. per square foot, whilst the velocity of 44 miles per hour gives a pressure of 5.8 lb. per square foot—a very serious alteration, which doubtless explains the fact that chimneys, buildings and bridges, which, by all the rules of the anemometers should have fallen down, are standing until to-day, or meeting an honourable end by the hands of housebreakers. This rotating anemometer has one great disadvantage, in that, owing to the inertia of the instrument, it does not record gusts of wind which may have a much greater velocity than the average values shown by this instrument. For instance, if the record is, say, 37 miles per hour, it shows that the cups have passed through a distance of 37 miles in the hour; at some part of the time they would be revolving faster than at others, but the record shows the average speed.

Another type of instrument is the pressure tube anemometer invented by Mr. Dines. This instrument automatically records all the varying pressures of the wind, and consequently all gusts and lulls that occur during a gale, whatever the velocity of the wind may be. The principles upon which the design of this instrument is based are that when the wind blows into the open horizontal mouth of a tube it causes an increase of pressure within it and in all air-tight arrangements connected with it. On the contrary, if the wind blows horizontally across the open mouth of the vertical tube, the column of air within the tube rises and the pressure is reduced within it and in all air-tight arrangements connected within it. The great advantage of this instrument is that it not only gives a record of all phases of wind, but a practically perfect exposure can be obtained by mounting it on a high pole.

The third type of anemometer is like the second type—a pressure recorder—and is in general use, although now practically obsolete. This type consists of a board or plate, which, by means of a weather vane, is kept facing the wind. The back of the board is fitted with springs, which keep the board up to its work. The wind acting on the face of the board drives it backwards, compressing the springs; the pressure is then measured and recorded automatically by the movement of the board or the compression of the springs. This type of instrument has been in use for many years, and, like the Robinson anemometer, the earlier forms recorded pressures which are now known to be erroneous and much too high. The cause of the high pressures recorded up to 60 lb. per square foot and over was faulty design and the momentum of the moving parts. The result has been that high pressures have been recorded and quoted by authorities, when, as a matter of fact, the actual pressure was something less than half those shown. This type of pressure boards was used at the Forth Bridge during its construction.

When Sir B. Baker, in conjunction with Sir John Fowler, undertook the responsibility for this great structure, it became necessary to ascertain as nearly as possible what would be the probable wind pressure on the bridge in the exposed position on which it is situated. He accordingly erected, on the top of the Old Castle on Inchgarvie, three anemometers; the principal one was 20 ft. long by 15 ft. high, approximately the size of the side of a railway-carriage of those days, erected vertically with its surfaces facing east and west, this direction being the most unfavourable from which the wind can strike the bridge The board was hung in a frame and fitted with four springs at the four corners to adjust the board to its normal position. The movement of the board was communicated to the registering apparatus by means of wires.

To ascertain to some extent the effect of small local gusts, plates were fitted 18 in. diameter in holes cut out of the centre of the board and at the top right-hand corner, and arrangements made to register the pressure on them separately. A circular plate with an area of 1½ sq. ft. was erected to face in the same direction and 8 ft. away from the large board, and provided with means for registering the pressure.

The third was a revolving gauge, also with an area of 1½ sq. ft., and fitted with a vane so that it always faced the wind. These anemometers, although giving good results, were not intended to give very accurate results.

The records of the violent gales show that the average on the large board is 0.565 of the average on the small gauge, and that the average on the large board is 0.592 of the average on the revolving gauge. If we round these figures up we can say that the pressure on the large board is five-eights the amount shown by the small gauges—a figure to be remembered when considering the records from the small anemometers in general use, and applying them in design of buildings of large exposed area.

After the completion of the bridge five revolving gauges with a plate area of 1½ sq. ft. were fixed on the bridge, and a continuous record was obtained. These results from the Forth Bridge are interesting and valuable in that they show records of an exposed position and at considerable differences in height and width. From a consideration of them with other reliable information now available, they appear to be high in value and to be influenced by gusts and possibly by some momentum of the plates of the anemometers.

The most valuable information available respecting wind velocities is undoubtedly that given by Dr. Shaw in his Report on the Beaufort scale of wind force, which is compiled from the records of the anemometers at various meteorological stations. This information shows the number of gales of wind exceeding 37 statute miles in the hour, grouped according to the maximum hourly velocities recorded by Robinson's anemometers. The point that is most striking after a study of the records is that pressures over about 12 lb. per square foot are rare. It must be borne in mind these records are averages and that individual gusts would give higher pressures on small areas.

Dr. Shaw, in his Reports and Memoranda, No. 9, compiled in connection with the Advisory Committee for Aeronautics, defines "the ordinary 'gustiness' of a steady wind" as the "variation of the velocity and direction of the wind, while the average hourly velocity remains practically unchanged, or increases or decreases gradually. The intervals of these gusts are of the order of some fraction of a minute; they are largely a question of exposure of the anemometer."

Another type of wind is known as the "line squall," which, Dr. Shaw says, sets "in as a temporary wind of great violence, accompanied by sudden changes of all the meteorological elements, and generally also by thunder and lightning." These are the most dangerous of all winds, with the exception of tropical hurricanes, which do not occur in our latitude.

The relation between coast and inland winds is a practical question which often arises when an important structure is to be designed in some locality where building regulations are of an elementary character or non-existent, and where the only guide is the possession of reliable information, such as that already quoted, but which has been taken at one or more exposed stations near the coast whilst the proposed structure may be sited some distance inland. Dr. Shaw says that, "speaking from the daily experience of weather maps we may say that a westerly wind of force 8 at an exposed western station will be represented at an inland or east coast station by a wind force of 5. The corresponding reduction in velocity is from 42 to 21 miles per hour. Provisionally, therefore, we may say that the surface wind velocity" (that is, winds that will affect a structure) "at a reasonable well-exposed station inland, or at a coast station for an off-shore wind, is reduced to one-half the velocity of an open coast station." As pressure is dependent on velocity it follows that the pressure will be reduced to a corresponding amount.

When dealing with a building of large exposed area there is often a difference of opinion in the absence of regulations, as to what wind pressure to adopt—*i.e.*, whether the maximum average velocity or the greatest gust. There is little available information as to what may be termed the area of a gust, but it is considered to be comparatively small. In a well-designed and well-constructed structure it would appear to be good enough to take the maximum velocity, and trust to the continuity of the structure to distribute local gusts.

The presence of windward and leeward pressures on experimental boards and structures has been known for many years, and many experimentors and writers have dealt with it. The windward pressure is, of course, caused by the wind striking on a surface exposed to it. The leeward pressure appears to be caused by the flow of air round the edges of the obstacle, tending to draw some of the still air behind with it and causing a partial vacuum. The direct pressure and the suction of the vacuum must be added together in order to arrive at what is known as the total pressure.

Up to the present assumed wind pressures, which are undoubtedly excessive, have been in general use for designing, and very safe structures have been the outcome; but with the advance of knowledge, the very heavy

* Abstract of paper entitled "Some Notes on Wind Pressure," by Mr. R. Graham Keevill, A.M.I.Mech.E., M.C.I., of the Works Department, Admiralty, read before the Concrete Institute on the 4th inst.

structure, now common, will gradually give place to more scientific designs and a corresponding saving of material. New methods now being evolved will then become of the greatest importance.

The Woolworth, at New York, is the highest office building in the world—760½ ft. from the street level to base of flag-pole on the tower, whose heaviest basement columns carry on each 4,740 tons, of which 1,300 tons is due to the action of the wind; whilst the weight of the steel framework is 24,100 tons. Probably the only commercial building in England approaching these dimensions is the Royal Liver building at Liverpool, which rises to a height of 290 ft. above sea level, and is built entirely of reinforced concrete. The amount of published matter on this subject is considerable. An endeavour has been made to embody within the paper the reliable information which is of practical use.

The reading of the paper was succeeded by a discussion, in which the following took part:—

Professor Henry Adams, M.Inst.C.E., President of the Institute; Messrs. Ewart S. Andrews, B.Sc. (Lond.); S. Bylander, Past Chairman, J.I.E.; W. Cyril Cocking; E. Fiander Etchells, A.M.Inst.C.E., F.Phys.Soc.; E. Gold (of Meteorological Office); H. D. Searles-Wood, F.R.I.B.A.; Percy J. Waldram, F.S.I., Lic. R.I.B.A.

THE ELECTRICAL EQUIPMENT OF A COUNTRY HOUSE.

A PAPER was read before the Junior Institution of Engineers on Friday, February 19, by Mr. Frederic H. Taylor, Assoc.M.Inst.E.E., Assoc.M.Inst.M.E., on "The Electrical Equipment of a Country House," in the course of which the author said:—

"The importance of the electrical equipment of a country house can, I think, hardly be overrated. In a town house electricity plays a most important part, but in an isolated position in the country its extent and its usefulness become considerably greater. Although perhaps the greatest duty entrusted to electricity in the house is lighting, it is, even in comparatively small residences, called into service for many others, such as heating, motor drives for domestic machinery, electric bells, and telephones. Leaving aside for a moment such parts as bells and telephones, it may be said that all other equipment in the country house is such as requires a power plant for its operation.

Power.—For this purpose plants of various descriptions are in use—water power and steam power for installations of considerable magnitude, and suction gas or paraffin engines for plants of more moderate dimensions. It is plant operated by the last-mentioned means to which I am particularly referring to-night, as these represent by far the largest part of the installations of the last few years. They have long since been obtainable in sizes from 1–2 kilowatts to about 12 kilowatts by a host of makers, and generally are very reliable in character. This commonplace paraffin-electric set, together with the use of metal filament lamps, has entirely revolutionised country house lighting both as regards prime cost and running cost, quite apart from the many other and equally important uses quite different in character to that of house lighting.

One of the greatest recommendations which such a plant has for its purpose lies in the fact that it can be put into the hands of unskilled labour and yet be relied upon to give satisfactory results. Commonly it is the chauffeur, gardener, or odd man on whom devolves the duty of running the plant; the first is not always reliable, as his motor-car driving often takes precedence over everything else, to the serious detriment of both battery and engine.

Voltage.—Many people urge that the most economical voltage to employ, except for large houses, is 25 or 50, and they are led to this view by the question of the number of cells to be employed in the battery. The pressure drop and the size of conductors are, however, equally important points, and, bearing in mind that 10-watt 100-volt lamps with a satisfactory life can now be obtained, it would certainly seem that cases where 50 volts is to be preferred are now few in number and limited to a comparatively small house. Another point is that where current is required for heating or motor driving, 100 volts becomes virtually a necessity, simply on economic grounds.

Complete Plant and Its Economy.—The complete plant consists of a paraffin engine, mostly of the vertical high speed type, direct coupled on to a dynamo mounted on an extension to the bed plate, the engine being designed to be started up on petrol, and afterwards switched over on to paraffin after a few minutes' run, when the carburettor will have become heated sufficiently. The economy of plants of this description, though perfectly well known to engineers, does not seem to receive sufficient publicity. For a small set giving only 3½ to 4 kilowatts of output, and such as one would use for a house containing about 140 lights, a consumption as low as 1–6 pints of paraffin per kilowatt hour can readily be had. In a case now before me of this size the cost for fuel will work out at something like 5s. per week for 140 light job during the winter months.

The dynamo is almost exclusively used for charging a battery of accumulators, from which current is taken, *viâ* the main switch-board, to the lighting and other circuits.

Arrangement of Plant House.—(*a*) For some obscure reason when a new house is to be built the space to be allotted for the electric plant is usually of the very smallest possible dimensions. Not unusually this important item is left unconsidered until everything else has been settled. The placing of a plant in a very confined space cannot produce the greatest efficiency of working. The man who looks after it amongst his other duties usually considers those other duties more properly his own and, therefore, his already somewhat meagre affection for the electric plant is not likely to be increased by unnecessary difficulties and inconvenience in working. To refer to one or two instances of this: In one country residence with which I was concerned, having decided upon the size of the engine-room, the professional adviser for the general building then proceeded to find out what was the largest size of engine which could be accommodated, with the final result that in the ordinary course of working the charging of the battery had to be prolonged for several hours, owing to the small size of the plant. Further, also, the cooling tank had to be placed in a passage running at right angles to the engine-room, so I have no doubt this glorious design can better be imagined than described. In another case, the engine-room was placed underneath the drawing-room, and in order to improve its acoustic properties it was carefully lined out with match-boarding. When requested to visit this installation I could hardly share the surprise which the owner found in the serious noise which resulted when the engine was running.

In a third case the size of the engine-room of a new house was originally settled on the assumption that a small gas plant was to be used. The owner, however, discovered this pious intention and immediately insisted on electric light. Unfortunately, those responsible for the building construction found themselves unable to provide any further space for an electric plant, with the result that the battery-room can only be entered from the engine-room, and for the most part ventilates into it. The water tank had to be placed in a loft over the engine-room, this tank being only accessible by means of an ordinary ladder.

(*b*) Another common mistake in the lay-out consists in the connection between the engine-room and battery-room by means of the main switch-board. It seems to be rather fashionable amongst many electric contractors and architects to have a hole left in the wall which divides the engine-room from the battery-room, the main switch-board being recessed into this. Two results may follow. One is that the acid fumes from the battery have free access to all the bare copper and brass connections of the switch-board; and the other is that with a view to meeting this point the back of the switch-board is sometimes boxed in with woodwork so as to form a shallow cupboard, only to receive later on various odds and ends and rubbish generally, and thus provide a good opportunity for fire.

However small the plant may be, I have invariably insisted on the switch-board being kept absolutely in the engine-room and on its being fixed out from the wall by angle iron, with a clear 18 in. space at the back, thus providing a fireproof job and giving every facility for inspection of connections.

(*c*) Another very usual arrangement much to be deprecated occurs in the fixing up of the battery. Batteries being now much smaller in size than they used to be owing to the much reduced power required by the adoption of metal filament lamps, often the battery is put in a single row of cells down each side of the room, and one finds that for cheapness the stands are only made about 18 in. high, the result being that the cells rarely get properly examined. An even worse practice I have seen followed is that of doing without stands altogether and placing the cells direct upon the floor. It can well be imagined that then the cells are never examined until the time comes when they refuse to provide any output.

Preferably the cells should be on a stand of a height to allow for convenient and ready inspection, say 2 ft. 6 in. to 3 ft. high.

Main Switch-board to House.—Usually, though not always, the engine-room is a building or part of a building quite detached from the house, with the result that mains have to be run from the one to the other. For the sake of appearance these are usually laid underground. For some reason, contractors when left to their own resources, usually favour V.I.R. conductors drawn into a screwed pipe, these conductors being sometimes lead covered. Care and experience are required in this class of work, much more so than seems to be usually allowed, the usual cause of trouble being (1) pipe line laid without a proper fall or any means of drainage; (2) the lead sheathing not being properly earthed, even if earthed at all, with consequent risk of pitting, corrosion, and subsequent breakdown. I turn now to a general consideration of the equipment in the house itself.

General Run of Mains.—In country houses of no great size, but requiring possibly only fifty to eighty lights, the main conductors which feed distribution boards can readily be run in pipe work chased into the main walls. In houses of larger size it sometimes happens that the architect provides a small trench which runs right round the house and is intended to contain the electric mains as well as the pipes required for the other services, such as hot and cold water supplies, telephones, bells, vacuum pipes, etc. The idea of this trench on first thoughts sounds exceedingly good and is undoubtedly a convenience, but it does not necessarily follow that it provides the best means of carrying the electric pipe work. Usually it is too limited in size and often the hot and cold water services are so mixed up with the electric pipe lines that the latter are apt to suffer. If a separate trench were provided for the electric work only, this would be quite another matter, and would no doubt be very satisfactory.

Control from Main Switch-board.—The point that often receives insufficient attention is that the mains between the engine-room and house should be fused at each end. This is a necessary convenience, both for testing and for isolation in case of fire.

Distribution Board System.—The number and arrangement of distribution boards must necessarily vary considerably according to the size and general arrangement of the house. There are, however, a few points which should always be borne in mind if the best design and greatest convenience is to be obtained.

Generally, there should be at least one distribution board for each floor, and it is, I think, preferable that the lighting fed from any board should be limited to the one floor or the part of the house which it is intended to serve. For the sake of avoiding a little extra trouble, it does happen sometimes that one finds the wireman has circuits belonging to the ground-floor fed from the same way or ways as other circuits which serve a part of the bedroom floor. In large establishments it is often desirable to have two or more boards feeding the ground floor.

It may generally be said that in the absence of an independent specification the tendency is for the distribution board system to be much too limited, and one has noticed, for instance, a small country house carrying about 100 lights fed entirely from one 10-way distribution board.

An important point often omitted, but which I always insist upon in my own work, is that of numbering each way of each board and providing a chart or list fixed in or near the distribution board to show exactly the circuit or circuits fed from each way.

Wiring System.—It may safely be stated that the system mostly favoured, particularly for new property, is some class of pipe work, and in this grave errors and omissions are often made. A notable instance is the use

of slip-socket tube laid under plaster work, simply of course for the sake of cheapness in the first cost. It is sometimes urged that the use of some form of contract nipple so as to ensure metallic continuity overcomes every objection. This is not so. The tubing still remains slip-socket, having, therefore, an open seam, and also other objections. Assuming that welded or other class of absolutely closed tube is used, the point most commonly omitted is that of the proper and efficient earthing of all metal work.

Conductors.—With regard to the system of conductors the only point to which I wish to refer in the limited time at my disposal is that of voltage drop. It is as curious as it is unfortunate that many of those engaged in this class of work altogether ignore this question of drop, and would seem to systematically settle all their sizes on the I.E.E. list of sections, quite forgetting that there is another rule (No. 33a of the I.E.E.) which specifies the permissible drop, although I do not necessarily urge that this rule should be strictly followed. It is indeed a matter for grave regret that one should find sections so insufficient that when a small proportion of the lights are turned on or off a visible lamp occurs to the lamps remaining on, this giving effects resembling alternately a miniature search light and a red hot hair pin.

Tests.—Tests properly carried out are mostly conspicuous by their absence, and it is surprising how few wiremen in charge are capable of taking the insulation test in such a way as to be of any real value. Not only should the work be tested on completion, but also at regular intervals afterwards, either quarterly, half yearly, or yearly, and a proper record kept of the results. I think the method which was adopted many years ago by the Testing Department of one of our large supply companies by far the most reliable. The method consisted in going over the entire building and lighting up every lamp in the place. When this was done the tester turned to the origin of supply, drew the main fuses and connected up the testing set, thus insuring that the whole of the job was included.

Not only should tests be taken of the insulation resistance, but also of the earthing to see that this is reasonably good. The circuiting from the distribution boards should likewise be tested, as it not infrequently happens that wiremen in connecting up cross connect one or more of the circuits.

Lamp Switching.—I would like to refer briefly to some of the great conveniences which can be obtained by proper methods of switch control. What I have in mind is what is commonly known as 2-way and intermediate switching, by means of which a lamp or lamps can be turned "on" or "off" from any one of two, three, or more positions regardless of how the switches may have been left at the other positions.

This great convenience is particularly applicable to hall and staircase lighting, though it is naturally used in many other places.

I have here to show you some actual circuits so arranged and also some spare switches of the types named and others. These switches have been almost entirely developed by one firm (Messrs. A. P. Lundberg & Sons). I think it might fairly be said that to them very much credit is due for the good results obtained and for the quality and design of their switches.

Another type of switch which is convenient for some positions is a 2-way-and-off switch which enables one to light or extinguish either one or two lamps, but never both at once.

I might here say that I have only just touched upon the fringe of the art of mutiple way lamp switching. It has now become quite a big subject, but unfortunately one to which very little heed is paid by the electric wiring fraternity.

Automatic Time Switches.—For country-house lighting the automatic time switch has a use peculiarly its own. It is of great advantage in securing economy in the use of electricity in the servants' quarters, where, unfortunately, as is commonly suggested, waste will most freely occur. By means of this switch the use of current can be automatically limited to any pre-arranged time, and the hours of usage may be varied at will either monthly, daily, or as often as may be most convenient. The clock part of the instrument is quite easy for any ordinary person to set, and the clock itself can readily be fixed in a lock-up case. The circuit to be controlled has one of its main wires connected to this automatic switch. I usually prefer to fix with a time switch an ordinary lamp switch which can be used in case of emergency to short circuit the automatic, as this may sometimes be desirable in cases of illness or other emergency.

Illumination and the Value of Measurement.—I would like to refer to the great importance of the scientific treatment of illumination. Although it is easy to adopt scientific methods in a commercial or business establishment, in the case of a residence one is up against the difficulty of reconciling the artistic views of the inhabitants with one's own views of what forms correct illumination. In the best of cases a compromise has to be struck, and in most cases the scientific treatment has to give way entirely to the so-called artistic tastes of those who will use the rooms. Certain cardinal points can often be adopted if one is tactful enough to avoid too much specific reference to them when advising the user. For instance:—

(*a*) Exceedingly bright lights in the field of vision must be avoided or, in other words, the lighting units must be kept out of direct line of vision.

(*b*) Highly polished reflectors giving images of the lamp filament are to be avoided.

(*c*) Lamps should be so placed that the light does not become reflected into the eye, as often happens with desk or table lighting.

(*d*) An absolutely uniform distribution of light over the entire room is not required, but whilst a certain measure of illumination is necessary for what is called the "general" lighting, the objects specially required to be seen must be made the subject of individual or "local" lighting.

(*e*) A room which is practically speaking in darkness with the exception of one particular part only is to be deprecated. Such points as the foregoing will not only result in efficiency, but will also tend to preserve without injury the most beautiful of human gifts, that is, eye-sight.

For the different positions in the house very different illumination values are required. Generally, it may be said that the illumination must be somewhere between 1 and 2 foot-candles, but for local illumination, such as the dining-table or the dressing-table, more like 4 foot-candles are requisite, some persons preferring even 6, and for such a special purpose as the billiard-table 12 to 15 foot-candles are considered more appropriate."

COMPETITION NEWS.

It must be understood that the following paragraph is printed as news, and not as an advertisement; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 301.

Housing Scheme, Liverpool.

The Housing Committee of Liverpool City Council considered, at a meeting on Friday of last week, the awards of the assessor (Mr. Henry Hartley) for the workmen's dwellings proposed to be erected in the Rathbone-street area. The assessor's awards are as follows:—First, Messrs. Biram & Fletcher, architects, St. Helens, £100; second, Mr. F. E. D. Badger, Carlton-lane, Stoneycroft (Deputy Building Surveyor to the Corporation), £50; third, Messrs. Halliday & Paterson and Mr. C. Gustav Agate, joint architects, Manchester, £25. There were eighty-seven complete designs submitted and one unfinished drawing. All have been deposited at the Walker Art Gallery, and after inspection by the Housing Committee the plans will be on public exhibition during the Easter holiday. The assessor stated that his task was difficult owing to the high standard of merit of many of the designs.

OBITUARY.

Mr. H. W. Moore.

The late Mr. Harry Wilkinson Moore, of Oxford, was elected in 1881 an Associate, and in 1888 a Fellow, of the Royal Institute of British Architects. He joined the "retired list" in 1912. In November, 1908, Mr. Moore and Mr. W. H. Warwick, practising in Oxford under the style of Messrs. Wilkinson Moore & Warwick, dissolved partnership. Mr. Moore was the architect of (in Oxford) the Corn Exchange, with the Volunteer Fire Brigade station and quarters, and a range of shops in George-street and Gloucester-green; Wycliffe Hall, which he subsequently enlarged in 1881; tutor's residence (adjoining the library), University College, and the Lodge, University Museum Gardens; the choir-school house and residence (in Brewer-street) for the master and boys of Christ Church Cathedral Schools; St. Hugh Hall, with additions, in Norham-gardens; St. Clement's parochial buildings; extensions, 1887-1894, Somerville College, in Walton-street, including the drawing-room, dinner-hall, library and gymnasium, and, on the west side, lecture-rooms and twenty sets of students' rooms; and the new reredos, St. Mary Magdalene Church, 1894. About twelve years ago he was called in by the Vicar and churchwardens of St. Mary Magdalene's to examine and report upon the structural condition and stability of the Martyrs' Memorial, and he carried out the extension of University College Hall.

Mr. H. J. Austin.

We regret to announce the death, on the 22nd inst., of Mr. H. J. Austin, architect, of Lancaster. We shall give some particulars of his career in our next issue.

BOOKS.

Ancient and Mediæval Architecture of India. By E. B. HAVELL. (London: John Murray. 30s. net.)

MR. HAVELL has written a most attractive book, not the least valuable part of which is its very fine and numerous illustrations. The literary style is excellent, and any work written with so much enthusiasm and knowledge is bound to be of interest to the reader. The author's thesis is that Indian architecture is one consistent whole, the main source of which was modified but not very greatly affected by foreign importation, and that everything Indian is rooted and founded on the Indo-Aryan village community. Not only does Mr. Havell see all Indian art as one and indivisable, but the various religions of Indian Brahman, Buddist and Jain are in reality inspired from one source, and the Vedas and Epics of Indo-Aryan antiquity are the root from which everything has been developed. The gods of the Hindu mythology are, we gather, rather to be considered as symbols than as objects of direct worship, and the civilisation which Mr. Havell pictures has more to teach than to learn from the West.

India does not need Western civilisation or Government. The village community is the source from which all good came in the past and that from which future hope is to be drawn.

Ferguson's division of Indian styles is dissected and pronounced to be entirely at variance with fact. The blindness of official beaurocracy is trenchantly condemned. The growth of Europeanised industry employing some thousands of workers is compared with the hand-made works of the village communities whose workers can be counted by millions.

We are quite prepared to believe that the great architectural literary pioneer, for that is what Ferguson may be called, is wrong in many of his facts and deductions, which does not detract from the greatness of his work. But were we to accept Mr. Havell's theories *in toto* we believe we should be parting with one error for another. To say that the Taj Mahal has more in common with the architecture of Ellora or Ajanta than that of the Mahommedan work in Egypt or Spain is to state that which carries obvious contradiction with it. To say, on the other hand, that the influence of the Indian worker, in what is practically a continent cut off by stupendous mountain ranges, deserts and jungles from the rest of Asia, very quickly modified foreign importations in style is to state what is obviously true. Ferguson was not an architect, and points of detail often escaped his notice, but the Taj and many other great works of the Mahommedan rulers of India have, we think, a clear title to the designation, "Indo Saracenic." It is also obvious that later developments should borrow more and more from native work sources because they were more strongly influenced by indigenous work, but Indian architecture cannot any more be treated as a consistent whole than the races of India can be treated as a single nation. Wave after wave of foreign conquest has broken on Indian soil, each one leaving its trace in its life and architecture, as is evidenced by its astonishing diversity and the diverse religions and customs of the people. Writing on Mexico, we imagine Mr. Havell would see in the monuments of New Spain more of the Aztec than the Spanish element, but

he would be incorrect in such a view, just as we believe we should be wrong were we to attempt to build for European purposes after the manner of any one of the peoples of India, though the influence of the native craftsman may find expression in the execution of European detail.

But such books as Mr. Havell's serve a most useful purpose, as they make the average man hesitate before subscribing to orthodox authority, and we are absolutely at one with him in his admiration for much of the great work of the past in India, which deserves infinitely more attention than it has yet received.

Victoria and Albert Museum: Department of Woodwork. The Panelled Rooms. I.—The Bromley Room. (London: Printed under the authority of his Majesty's Stationery Office, 1914. Price 6d. Pp. 23.)

The Panelled Rooms. II.—The Clifford's Inn Room. (London, etc. Pp. 16.)

THE general adoption of panelling as a wall lining before the close of the sixteenth century marks an important stage in the evolution of domestic comfort. No one who has studied the life of the Middle Ages can have failed to remark the movable character of the household stuff; the hangings of the walls, the bedding, the furniture of the hall, the kitchen utensils, and even the fittings of the private chapel were moved from place to place as the lord visited his various manors. In some cases there is reason to believe that the glass casements were removed from the windows and laid aside while the family was away; nor was it till late in the sixteenth century that either the window glass or the wainscotting of the chambers was regarded in law as integral parts of the house. No examples remain of the "lambruscation" of rooms so frequently referred to in the thirteenth century, but it was probably no more than a boarded dado, the upper portion of the wall being plastered and painted; green powdered with gold stars, or imitation drapery, were favourite schemes in the Royal houses. The two succeeding centuries were essentially the age of hangings, and though towards the end of the fifteenth century panelling was used to a considerable extent as a wall lining, apart from framed and moulded partition work, its development can hardly be said to have begun till the sixteenth century, when the internal fittings came to be considered more in the light of fixtures, and the influence of the renaissance introduced a feeling for interior design unknown before. The handbooks which form the subject of this notice illustrate and describe two of the most representative of the valuable series of panelled rooms preserved at South Kensington. The Bromley Room, a typical example of the later phase of the early renaissance, exhibits all the characteristic features of the Jacobean interior—the small panels with mitred mouldings (here grouped somewhat after the style of the panelling at South Wraxhall), the pilasters with strapwork ornament, the richly-carved chimney-piece and overmantel, and the elaborately-decorated ceiling, with its many geometrical compartments. In strong contrast to this repetition of small parts, which was the heritage of the Middle Ages, the late seventeenth-century Clifford's Inn Room affords a striking illustration of the manner in which the renaissance spirit had by this time permeated the fibre of national art, snapping the thread of native tradition. The largeness and balance imparted to the design by the bold raised panels, and the ornament concentrated upon the chimney-piece and doorcases, compare with the intricate elaboration of the earlier example in much the same way as the measured dignity of Dryden with the brilliant spontaneity of Spenser. Both handbooks are illustrated by photographs and measured drawings, the latter the work of Mr. A. E. Bullock, who has admirably caught the character of the ornament, the detail of the fine Royal Arms over the fireplace of the Bromley Room being particularly good. The omission of a large scale section of the panel mouldings of this last room, however, very seriously impairs the value of the handbook to students. Mr. Clifford Smith contributes a short historical notice of the "Old Palace" of Bromley-by-Bow, followed by a clearly-written description of the panelling. The history and description of the Clifford's Inn Room, the day of which is fixed within the years 1686 and 1688, are by Mr. Oliver Brackett.

BOOKS RECEIVED.

GEOMETRY OF BUILDING CONSTRUCTION (Second-year course). By F. E. Drury. (London: Geo. Routledge & Sons, Ltd. 3s. net.)

THE WAR AND THE PARTING OF THE WAYS. By Chas. H. Luke. (London: Sampson, Low, Marston, & Co., Ltd. 1s. net.)

MODERN ILLUMINANTS AND ILLUMINATING ENGINEERING. By Leon Gaster and J. S. Dow. (London: Whittaker & Co. 12s. 6d. net.)

HANDRAILING FOR GEOMETRICAL STAIRCASES. By W. A. Scott. (London: Whittaker & Co. 2s. net.)

CORRESPONDENCE.

Government Architecture, India.

SIR,—May I allude to the editorial footnote which you published on page 8 of your number of January 1 under the notices of Mr. Crouch's two designs reproduced in that number? It is possible that you did not intend it so, but the remarks in that footnote are such as to prejudice in the minds of some of your readers the professional reputation of the author of these designs, as well as generally that of the body of architects employed by Government in India. It is seldom recognised that, intervening as we have done somewhat late in a system already established for generations, we serve and work under none of the easiest conditions. We have, moreover, by throwing in our lot with India practically exiled ourselves and cut ourselves off from enjoying the advantages of home-life, home-work, and the stimulus and support afforded by the intercourse of our fellows at home. It is hard if we cannot count on the sympathy at least of those fellows, but it is just that which is likely to be alienated from us by remarks of the sort contained in your paragraph.

I am unable to see how anyone reading your note can put any other construction on it than that you intend your readers to understand that you find small merit in the designs published, and to see in them evidence in support of your implied condemnation of Government's policy with regard to the employment of architects. It is all very well to trust that your readers will be able to use their own individual judgment in the matter, and it is all very well to say, as I should be prepared to say, that the *Builder* would not stoop to so mean a trick as to publish the work of a professional brother had it not judged it to be worthy to pass the high standard of merit which the paper has set up. But not all readers may be able, in the presence of your criticism of Government's policy, to recognise a more generous motive on your part; not all readers may in these times of stress take the trouble to exercise their judgment to the full; and not all readers of the *Builder* are architects. There is an insinuation underlying your remarks—no matter how little intended—which is likely to stick.

Therefore I invite the *Builder* to state clearly that no slur on Mr. Crouch's work was intended to be implied, or otherwise to say definitely in what respects it is found that in these buildings to which publicity has been given the design has been "sacrificed."

I have no brief to refer to that part of your criticism which is directed against Government's policy. But in fairness to Government's architects (and to Government incidentally) I should like to make a short statement. The *modus operandi* in Indian Government work is, it would appear, but little understood at home. No Government architect in India is or can be the architect of any building in the full and individual sense that applies in private practice at home. His work is necessarily more or less of the nature of a collaboration with the administrative and executive machinery of the Public Works Department as that exists from time to time; *more* where that machinery has not yet been greatly affected by modifications, brought about by the gradual introduction of the architect's services, *less* and still less as time goes on, as those modifications take shape and as the disproportion is reduced between the strength of the Department's total cadre and the number of the architects. It is therefore an unsound basis on which to found any criticism of the building work of the Department to compare the amount of work with which one of our architects may be associated to the amount with which the average architect in private practice may be associated. You may not approve of the system—and there is much to condemn in it, as those who know it best and are ever working for its improvement are well aware. But no sound basis for criticism of it is possible unless it is recognised that the system is in process of transition and reformation from what it was when, not many years ago, there were no architects at all—I do not say no architecture—that this process has been by no means slow, and that it is showing every sign of increasing rapidity of action. It should be recognised, too, that this process must be gradual, that all crude, sudden, and drastic changes in the system are impossible without such dislocation of the machinery as would be detrimental to the interests not only of all the departments of Government who depend on the Public Works Department for necessary works, not only of all in the Department itself, including the architects, but most particularly of the quality of the work, especially of the architectural world.

In short, I would respectfully suggest to the *Builder* that it would best serve the cause of architecture in India, which we all have at heart, by adhering more decidedly to the attitude of sympathy and encouragement displayed by certain of its contemporaries towards the architectural work of the Public Works Department and, for the rest, by a suspension of judgment. And to members of the profession at home I would suggest a like attitude. Those of them who elect to come to this country and throw in their lot with it, whether as private practitioners or as successful applicants for Government service, we shall welcome with open arms. JN. BEGG, F.R.I.B.A.

Simla.

[*** Our remarks were clear and only called attention to what we consider are conditions under which no architect can be expected to produce the best work he is capable of. A comparison between the work of some of the architects now in Government service in India before and after their appointment will illustrate our arguments. Our contention is that in fairness to the architectural profession, in the interests of architecture, and in the true interests of economy the Government of India should employ a greater number of trained architects *so as to give them the conditions under which alone good architecture can be produced.* Our remarks are wholly and entirely meant to be a criticism of what we regard as an impossible system, and are made in the interests of architects.—ED.]

Restrictions on Sketching.

SIR,—Your notes upon this subject in the *Builder* of the 12th inst. recall to my mind an incident of last autumn. I was spending a very brief holiday at a quiet little place by the sea (the name I suppress, in fear of the Censor!). I had been each day sketching around the place to my heart's content, without question or interference from anyone until one evening when I was making a rapid attempt at a fine sunset effect over the sea. My attention was attracted by the sound of slow and measured footsteps, and, looking up, I saw a police-constable bearing down upon me in all the dignity of his uniform, which, I think, must have been specially donned for the occasion, as this was the first and only time I sighted a constable during the whole period of my visit. He came close up and stood behind me, looking over my shoulder in silence for some moments. Just as I was beginning to feel flattered by his interest he broke out in stern official tones: "Do you know that's contr'y to reg'lations?" Utterly taken aback, I asked, "What is?" "What you're doin'," was the reply. I explained that I was sketching the sky. But the guardian of law and order was not to be reasoned with. "It don't matter what it is—it's my dooty to stop you!" he announced. Still incredulous, I inquired tentatively what would be the consequences in the event of my continuing. "I should have to remove you," was the solemn sentence. Not wishing to court such conclusion, and realising that I was up against "authority" beyond sentiment or reasoning, I surrendered, upon which my persecutor explained (and I fancied that I detected a note of apology in the tone—though possibly it was only fancy, after all), "Reg'lations are reg'lations and dooty's dooty!"

Thus disturbed, and with a view to

ascertaining, perchance, my position with regard to future operations in the matter of sketching, I made my way to the local police station, and there poured out my woes into the ear of the chief inspector. He listened with serious and judicial mien, and after careful deliberation announced guardedly that, according to the "strict letter of the regulations, the constable was right in acquainting himself" with what I was doing, and that, having so done, he should have "exercised reasonable discretion"; that, in the case now before him, the constable had obviously been somewhat over-zealous, and that I was at liberty to "carry on."

"To carry on!" Alas, by this time the scene had changed! The glorious colouring which had attracted me was no more; the crimson glow had given place to slaty greys; the masses of purple cloud, the dashes of scarlet and orange and the flecks of gold were now but mere smirches of smoke; the sea, previously a flood of molten gold, had become a sheet of dull cold lead; and the dusk and mists of a late autumn evening were creeping over the land and sea as I turned sorrowfully homewards, reflecting on the evanescence of earthly joys and beauty and the abiding and heartless nature of "Reg'lations" and "Dooty."

WM. H. ATKIN-BERRY.

GENERAL NEWS.

Good Friday Week.

In consequence of the Easter holidays, we go to press a day earlier than usual next week, the *Builder* being published on Thursday. All communications must reach the Editor by first post on Tuesday morning.

Professional Announcement.

Owing to the death of Mr. E. C. Homer the partnership existing between him and Mr. C. W. Lucas, architect and surveyor, Evelyn House, 62, Oxford-street, W., has been dissolved. Mr. Lucas is continuing to practise; his address will be 56, Brook-street, Grosvenor-square, W Telephone, Mayfair 1321.

Roofing Tiles and Building Materials.

An agent in Quebec Province desires to secure the agencies of United Kingdom quarriers and exporters of Broseley red roofing tile and other building materials. United Kingdom manufacturers and exporters of the goods mentioned may obtain the names and addresses of the respective inquirers on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C. Further communications regarding the inquiries should be addressed to H.M. Trade Commissioner for Canada, 3, Beaver Hall-square, Montreal.

Stopcocks for Houses.

With the idea of putting an end to the constant breaking up of streets in connection with the water supply to houses the Metropolitan Water Board have adopted a scheme whereby, with the co-operation of householders, stopcocks will be provided to each house at a fixed charge of 15s. Besides obviating the breaking up of the streets these stopcocks will enable householders to have the supply temporarily cut off when repairs are necessary indoors. The scheme is not compulsory, but it is believed that many people will appreciate the value of the reform and will co-operate.

Buildings in Belgium and France.

In the Walker Galleries, New Bond-street, which now include the large room of the old Goupil Gallery, an interesting exhibition has been arranged. It consists mainly of old prints and drawings of buildings in Belgium and France. There are examples by Samuel Prout, David Roberts, T. Shotter Boys, W. Callow, and the lesser-known but very able G. Simonau. Among the modern illustrations of buildings affected by the war is a new etching by Mr. W. Monk, R.E., of the Town Hall, Louvain.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. Cyril Jackson, Chairman, presiding.

Tenders.—Tenders were received for the supply and erection of new engines, pumps, and surface condensing plant at the North Woolwich pumping station.

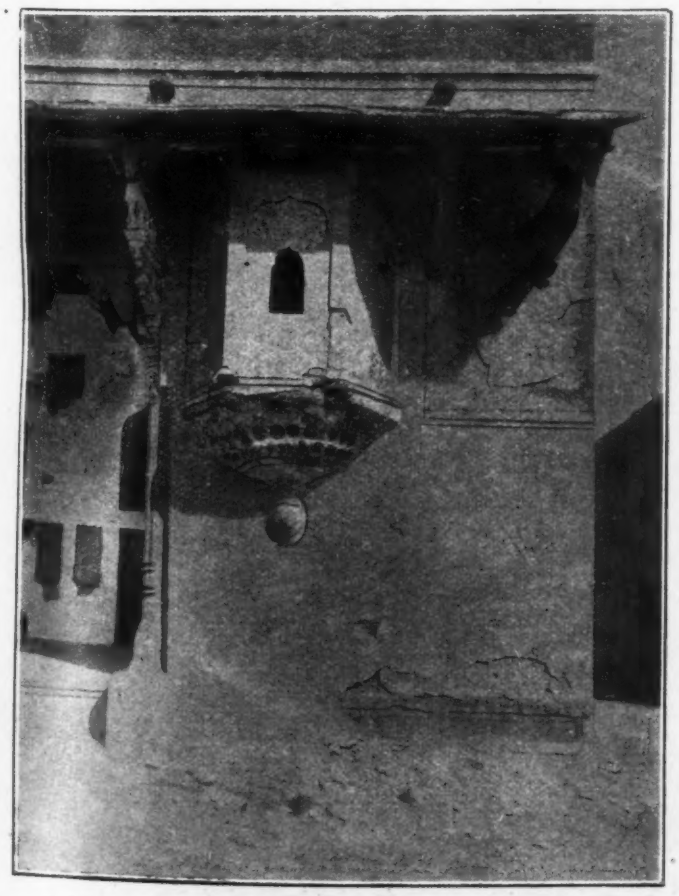
The Valuer of the Council.—With reference to filling the vacancy caused by the retirement of Mr. Andrew Young from the position of valuer of the Council, it was agreed on the recommendation of the General Purposes Committee, that applications be invited by public advertisement for this position at a salary of £1,500 a year, rising to £1,800 by instalments of £100 every two years, and that members of the staff be not precluded from making application for the post.

Sites for the Provision of an Elementary School.—It was agreed, on the recommendation of the Education Committee that the proposal to apply in the session of Parliament, 1915, for powers of purchase over alternative sites comprising (1) Nos. 43 to 63 (odd), Carter-street, and Nos. 4 to 20 (even), Lorrimore-road; and (2) Nos. 112 to 138 (even), Lorrimore-road, and Nos. 27 to 53 (odd), Finchley-road, with a view to the provision of an elementary school in Newington, S.E., be proceeded with; and that the Southwark Metropolitan Borough Council and the Board of Education be so informed.

Chelsea—Servite R.C. School.—The Education Committee recommended that no observations be offered on the proposal of the managers of the Servite R.C. School (Chelsea) to provide a new elementary school for about 600 children to replace the existing school premises; and that the managers and the Board of Education be so informed.—This was agreed to.

Metropolitan Water Board—Deficiency Rate.—On the recommendation of the Local Government, Records and Museums Committee, it was agreed that a conference be held between representatives of the Council and of the Metropolitan Water Board to consider the system of dealing with deficiencies in the water fund and proposals for amending the law on the subject with a view to the establishment of a more equitable system; the Committee being authorised to take the necessary steps.

Garden House, Croom's-hill, Greenwich.—In the report of the Local Government, Records and Museums Committee, it was stated that the Greenwich Borough Council, the Society for the Protection of Ancient Buildings, and the London Survey Committee, had suggested that the Council should purchase a structure at present used as a summer-house which is situate on private property at Croom's-hill, Greenwich, and which is stated to have been designed by Sir Christopher Wren. The price asked for the structure is 500 guineas. But, on the recommendation of the Committee, the Council agreed to take no action with regard to the purchase of the building.



Lahore Fort: Roman Catholic Chapel. Oriel Window before removal of modern plaster.

Lahore Fort: Roman Catholic Chapel. Oriel Window after removal of modern plaster. The missing *jali* work is being replaced.

Restoration Work, India. *(See page 292.)*

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ILLUSTRATIONS.

The First Atelier of Architecture.

WE illustrate this week some designs which have received Mentions at the First Atelier of Architecture. They are referred to on page 294.

Illustrations of Restoration Work in India.

WE give some interesting illustrations which appear in the annual Progress Report of the Superintendent of Muhammadan and British Monuments, Northern Circle, for the year ending March 31, 1914. The Report is a painstaking record of the immense and useful work which is being carried out under the direction of Mr. Gordon Sanderson, assisted by a small staff apparently almost completely composed of natives. The work done consists of restoring and repairing ancient monuments, taking photographs as records, recording inscriptions, and involves constant journeys over a large section of Northern India. From the Report before us we illustrate two domed structures at Delhi, the Gumbaz Mubarik Khan and the tomb of Sikandar Lodi before and after the reconstruction of the *chajja* or projecting roof surmounting the arcaded sides, a view of the Mazuri Bagh at Lahore showing the improvements carried out in 1912–13, drawn by Mr. Gordon Sanderson, and some beautiful types of domestic architecture from Lahore, which illustrate both the fancy and richness of Indian architecture. The expenditure on conservation works for the year has been 2,19,865—0—4 rupees as against 1,54,945—11—1 rupees in the previous year. The buildings principally concerned have been those of the former Moghul capitals of Agra, Delhi, and Lahore.

It is interesting to learn that some of the Indian princes are concerning themselves in these matters, the Maharajadhiraja of Burdwan having presented the Taj gardens with twelve sandstone seats, the tomb of Akbar at Sikandarah with a new hanging lamp, and a chaddah or covering for the sarcophagus. He is also interesting himself in the tomb of Mariam at Sikandarah and in the site of the tomb of Jodh Bai, the Rajput wife of Jehangir, almost all traces of which have been buried under the rifle butts near the Cantonment Station. The Begum of Bhopal has offered to provide 10,000 rupees for the repairs to the tomb of Zebu-n-nisa at Lahore, but the authorities have informed her Highness that there is considerable doubt whether the princess was buried at Lahore at all.

MEETINGS.

FRIDAY, MARCH 26.

Royal Sanitary Institute.—Mr. A. J. Martin on "Water Supply, Sources of Supply, and Distribution." 7 p.m.

Leicester and Leicestershire Society of Architects.—(*a*) Mr. W. E. Moore on "Practical Considerations in the Design of Structural Steelwork," and (*b*) Mr. H. M. Robinson on "The Planning of Elementary Schools." 8 p.m.

MONDAY, MARCH 29.

Royal Institute of British Architects.—Mr. W. A. Pite on "King's College Hospital." 8 p.m.

Royal Society of Arts.—Mr. M. H. Baillie Scott on "House Building" (III.) 8 p.m.

Royal Sanitary Institute.—Mr. A. J. Martin on "Scavenging, Disposal of House Refuse." 7 p.m.

University Extension Lecture (at the Victoria and Albert Museum).—Mr. Banister Fletcher on "Belgian Mediæval Architecture."

TUESDAY, MARCH 30.

The Architectural Association.—Mr. Hilaire Belloc on "The Changes in the Conception of Artificial Permanent Defence, including those indicated by the Present Campaign." 8 p.m.

WEDNESDAY, MARCH 31.

Royal Archæological Institute.—Mr. Ian C. Hannah on "Irish Religious Houses." 4.30 p.m.

FIFTY YEARS AGO.

Peerage-Property in London.

THE High Court of Parliament of Great Britain and Ireland assembled in Sir Charles Barry's best monument consists, as every schoolboy knows, or should know, of three estates of the realm: Queen, Lords, and Commons; and every schoolboy midway in his teens ought to know, or be made to know, that neither Queen nor Lords have any control over the exchequer, the budget of the year, or the estimates. Few or none, however—and we include men of learning and rank—are aware that nine English peers, of the Upper House, or second estate, have greater landed and house property in London west and north-west of Temple Bar than any ninety or more Commoners, of the Lower House, or the third estate.

Here are the names of the nine lucky lords:—

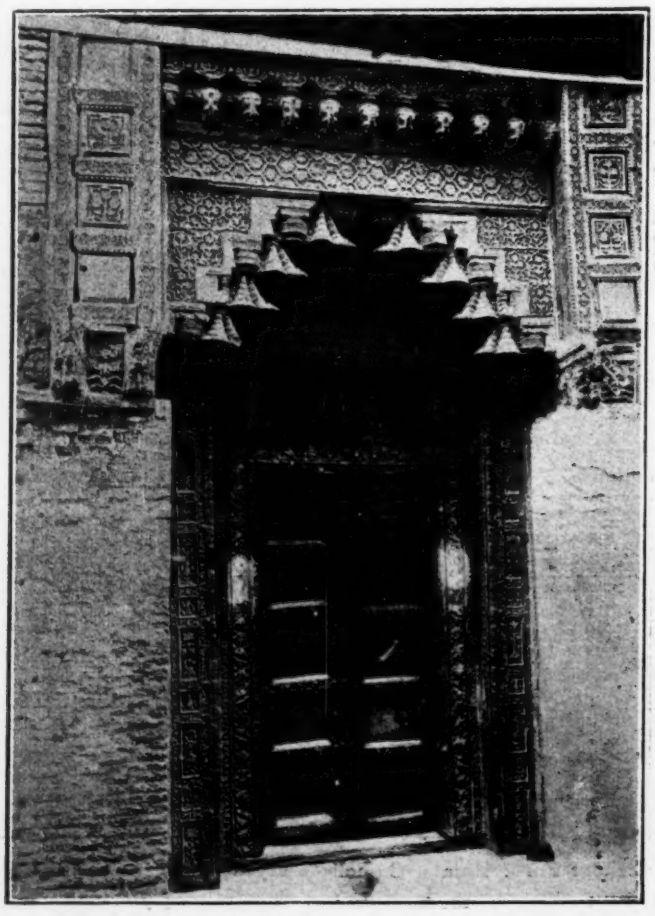
1. The Duke of Bedford.
2. ,, ,, ,, Portland.
3. The Marquis of Exeter.
4. ,, ,, ,, Salisbury.
5. ,, ,, ,, Northampton.
6. ,, ,, ,, Westminster.
7. ,, ,, ,, Camden.
8. Earl Craven.
9. Earl of Portman.

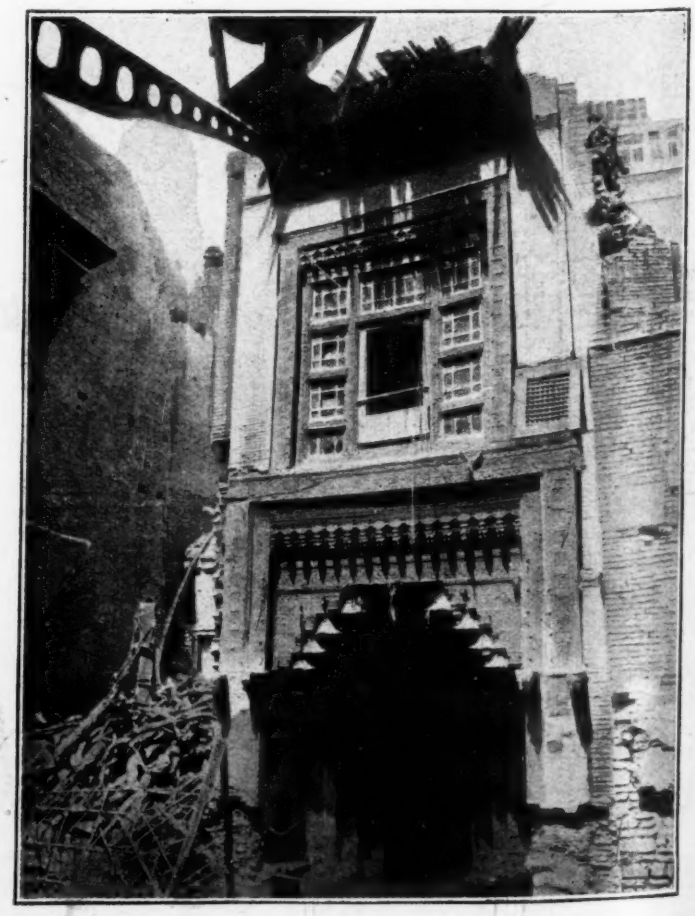
No other nine peers or M.P.'s, or London citizens of "credit and renown," can be *pitted*, we repeat, against these nine peers as owners of London property *west* of Temple Bar and without the jurisdiction of the Right Hon. the Lord Mayor and the oaken truncheons of the *Peelers* of City police.

[*** We give the above extract from the *Builder* of March 25, 1865.]

THE ROYAL ACADEMY BANQUET.

It is officially stated that the annual dinner usually held to celebrate the opening of the Summer Exhibition of the Royal Academy will not take place this year. The annual exhibition will be held, as usual, from May to August.

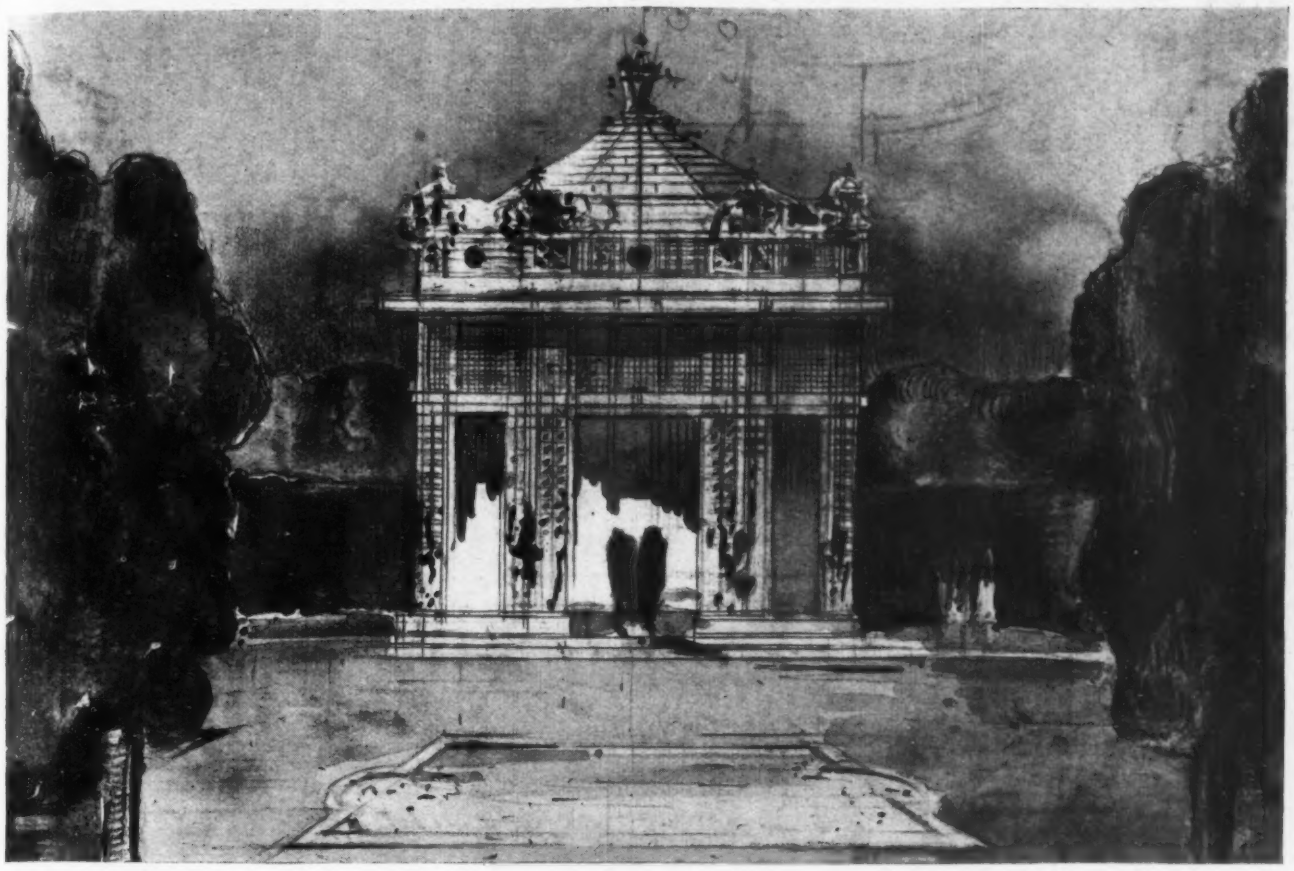




Lahore: Domestic Architecture.

(From the Annual Progress Report, Muhammadan and British Monuments, Northern Circle.)

ARCHITECTURAL SCHOOLS SECTION.



First Atelier of Architecture: A Trellis Pavilion.

By Mr. P. H. Meldrum. (*See page 294.*)

AN ARCHITECT'S LETTERS TO A STUDENT:

THE NINETEENTH LETTER.*

The Position of Subcontractors.

THE question you raise in your letter as to the position and treatment of subcontractors, though it is one which did not trouble me much in my active practice, is, I can see, not only of interest but of growing importance, for as science advances so the technical requirements of dwellings increase and extend ever further beyond the range of the ordinary builder. It might be argued that the building trade should expand and progress proportionately, so that the general contractor might be called on to supply all the special requisites of a modern structure, and that subcontractors should therefore be non-existent. The variety of requirements, however, is now so great and their individual use often so intermittent that no contractor could, without a guaranteed volume of work of great extent, afford to maintain the necessary plant and staffs to conduct all the operations required in present-day equipment. But I am not at all sure that this is the ideal to be arrived at. In the days of the master craftsman distinct trades worked side by side without any general contractor, and, though the conditions of building were undoubtedly very different then, this is the usual practice in the North of England at the present time.

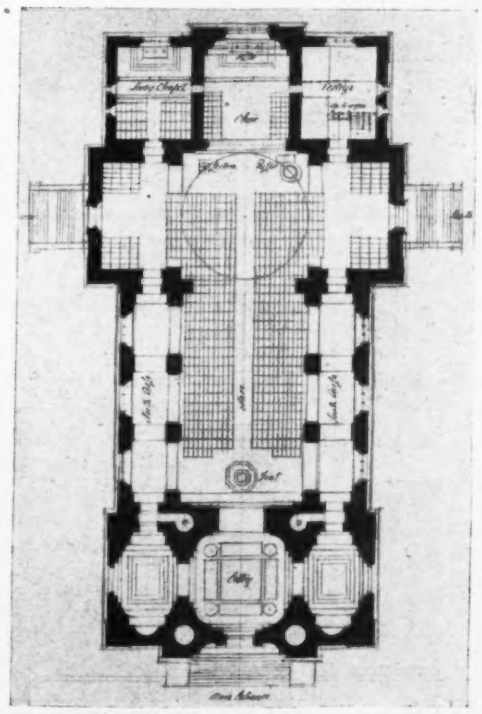
Three practical alternatives seem to exist for dealing with the situation—one, that of making every trade and specialist a separate contractor directly responsible to the architect; the second, that of lumping together as much of the work as possible under one general contractor and making him responsible for the work of specialists who are his subcontractors but are nominated, or at least approved, by the architect; the third, the employment of a general contractor and the appointment of specialists who are responsible directly to the architect and who are not in any way under the general contractor, payment being made to them direct under separate certificates. It will be observed that, strictly speaking, only in the second instance does the true subcontractor appear, but we may profitably discuss all three cases and compare their merits.

Could every contractor on a building work independently the system of separate contracts with different trades would no doubt be more widely followed; but there are few trades which do not require assistance from other trades, which means a certain amount of intermingling of labour and finance which present opportunities for disputes and friction. Thus, a firm supplying lifts requires bricklayers and concretors in connection with the shaft and carpenters and joiners in providing access thereto.

Now, if every trade and specialist firm is acting independently, it is evident that any overlapping work must be very carefully thought out and definitely assigned to specific firms if difficulties are to be avoided; and this is best arranged by requiring each firm to detail the extraneous labours to be done for it in other trades, so that these can be priced and undertaken by such firm or, often better, by other firms at work on the building in such extraneous trades. Even so, some provision for unforeseen interworking is generally desirable; but, given these conditions—firms of good standing and an architect with some judicial proclivities—this system is workable.

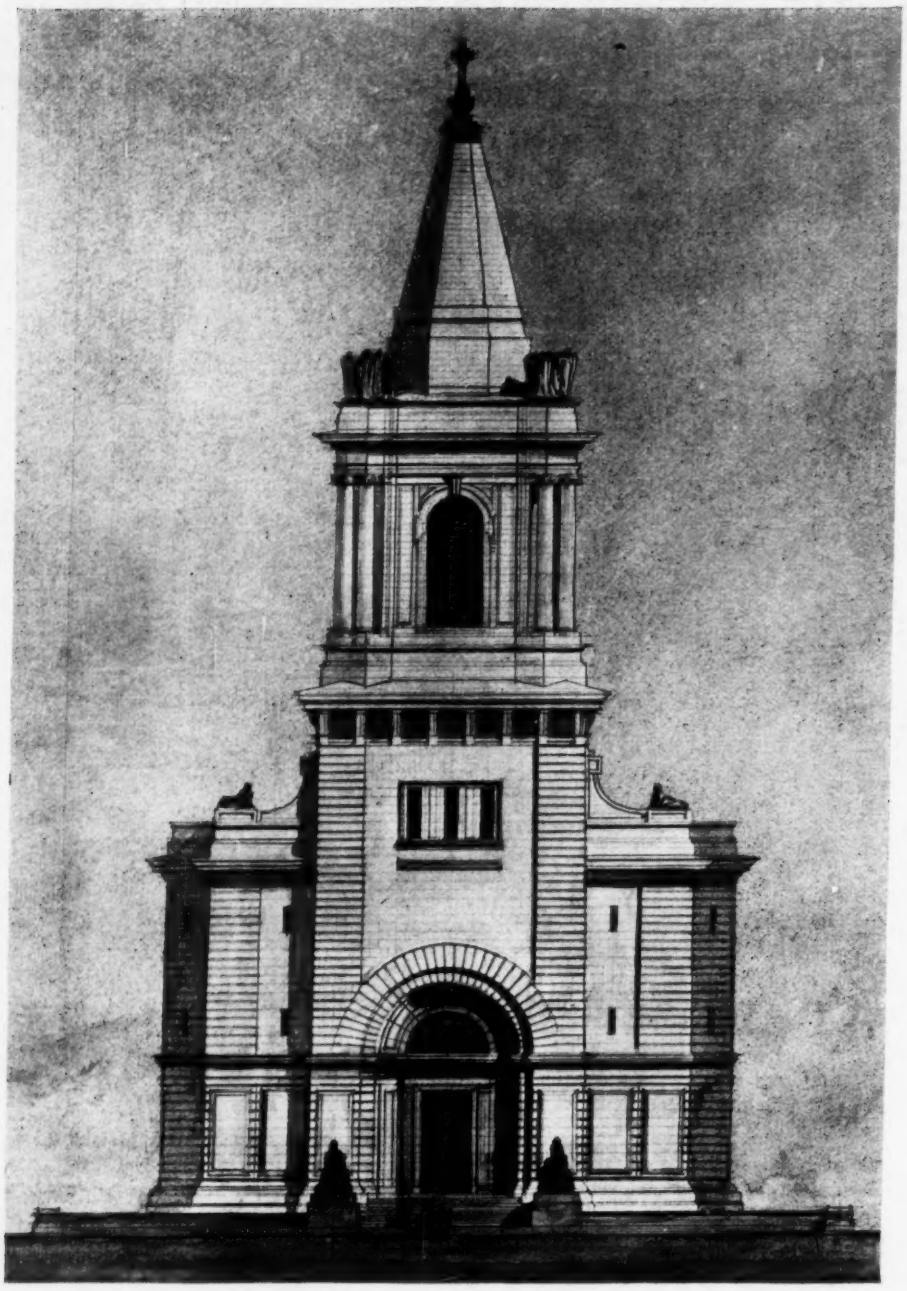
The second method—that of employing a general contractor and making him responsible for all the specialists as subcontractors, though these firms are appointed by the architect—is much the commonest practice. The underlying object is to fix responsibility on one man, and thus to oblige him to take his share in the superintendence of the other firms called in, and in such case he alone is responsible to the architect for the character of their work and for any defects therein which may arise. Now, on the face of things, this appears to be a very satisfactory scheme, but it is not without its defects. Legally it is sound enough, provided the subcontractors undertake to be bound to the general contractor under the terms of his contract, to which the latter is generally sharp enough to see. Often, however, unwarranted conditions are required to be subscribed to by the general contractor unknown to the architect, and money is extracted from the subcontracting firms under threat of the reduction of facilities in the execution of their work or other penalising influences. To reduce the risk of this it should be clearly laid down to firms tendering what, if any, profit on the subcontractor's work will be allowed, and what facilities for the execution of such work are to be provided by the general contractor. Another source of friction results from delay of payment to these firms. A certificate is issued stating that a certain sum thereof is to be paid to, say, the steel engineers, but such payment is often quite unjustifiably delayed, and complaints result. The best way to meet this is to make it a condition that

* For previous letters see our issues for March 27, April 24, July 24, August 28, October 23, November 27, 1914, and January 22 and February 26 last.



First Atelier of Architecture: A Town Church.

By the late Wilfred Hoyle, A.R.I.B.A. (*See page 294.*)



First Atelier of Architecture: A Town Church.

By the late Wilfred Hoyle, A.R.I.B.A.

receipts for payments made to subcontractors must be produced before another certificate is issued. With all these safeguards troubles are not ended. If subcontract work goes wrong, legally redress is only obtainable from the general contractor, w ic ı leads to a slow triangular battle, which usually results in the architect, in despair, dealing direct with the delinquent firm; and if, as often happens, the general contractor has not held back a proportional amount of retention money in the settlement of the accounts, the difficulty is increased. "This is your man," says he; "you nominated him, and it is not fair that I should pay for his misdeeds." Such an attitude is, of course, wrong in law; but if the architect has had direct dealings with such subcontractor "over the head" of the general contractor he may have seriously weakened his position.

Now, the third method of dealing with this problem—namely, that of making certain specialist firms directly responsible to the architect alone—is, of course, a method of procedure much advocated by such firms, inasmuch as they are freed from the tyranny of the builder, owe him no duty, and have not to part with any of their profits to allay trouble. Paid direct on the architect's certificate, they occupy a position of entire independence. This is, of course, going back in some measure to the first method cited, and the architect must make between such firms and his client a separate contract if the work has any importance and he is to be properly safeguarded; but this is hardly sufficient, for the general contractor may reasonably demand that such firms shall undertake to conform to his contract conditions if they have the power of involving him by delays or by refractory conduct in penalties or other losses. These firms should thus give an undertaking in harmony with the conditions of the head contract.

Now, I feel that I have merely blotted out any ray of daylight on this subject you ever saw, and, more, I am unable to unravel this nightmare; but perhaps my letter is not quite useless as suggesting some of the pitfalls to be regarded. Probably no universal system is possible; the work of a sculptor is not on the same footing with that of a hot-water engineer, nor a firm supplying ten pounds' worth of special ironmongery with that responsible for the terra-cotta of a façade. Common sense, experience, and forethought must be your counsellors.

FIRST ATELIER OF ARCHITECTURE.

WE illustrate this week some designs which have recently obtained Mentions at the First Atelier of Architecture. Ten marks out of a possible twenty secure a Mention; fifteen secure a First Mention. A First Mention is something of a distinction, as only three have been awarded since the Atelier started work two years ago.

Mr. L. H. Buckaell is to be congratulated on winning a First Mention in last month's competition with his able design for a monumental fountain to form a decorative *motif* at the extremity of an avenue terminating in an open space. Mr. E. R. Jarrett and Mr. A. B. Hamilton obtained Mentions in the same competition for their fountains, while Mr. P. H. Meldrum was successful in the twelve-hour competition for designs for a trellis pavilion.

The designs by the late Wilfred Hoyle and Mr. Bryan Watson obtained Mentions in previous competitions.

An exhibition was recently held of designs which had been submitted in the first competition for the Board of Trade Offices by members of the Atelier, and an evening was devoted to discussing them. Mr. H. V. Lanchester dealt with the site and with the possibility of a comprehensive scheme for future Government offices, including the whole of the land from Horse Guards-avenue to Westminster Bridge, of which scheme the Board of Trade Offices might have formed a part. The Patron, Mr. Arthur J. Davies, read a criticism on the winning designs contributed by M. Chaurès, the Sous-Patron, now lying wounded in a French hospital.

Mr. A. R. Jemmett then dealt briefly with different types of office buildings—Government, municipal, and private—before referring to the particular type under discussion. Mr. A. E. Rickards alluded to the difficulty of presenting a completely thought-out architectural conception in the short time allowed for a competition, but emphasised the point that all competitors might at least make an attempt in that direction. Mr. Percy B. Tubbs, Mr. Wallis, and others contributed to what was generally admitted to have been an interesting and enjoyable evening, for which the Atelier is indebted to those members who were good enough to lend their designs. Such discussions as these are considered a valuable part of the work of the Atelier, and it is intended to hold one every month after the conclusion of the usual monthly *projet*.

The Atelier is now recovering from the first disastrous results of the outbreak of war: new members have joined, and the various competitions are well attended. But the

First Atelier of Architecture: A Jeweller's Shop Front.

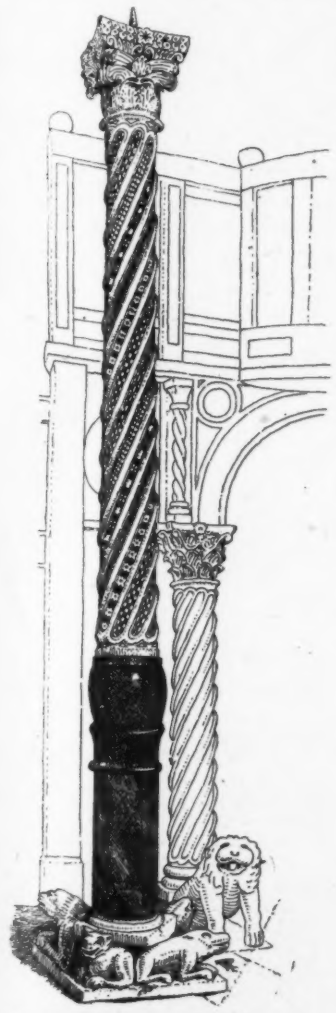
By Mr. Bryan Watson.

Atelier has had to bear its share of loss. In the earlier days of the war its Sous-Patron, J. L. P. Chaurès, was wounded, and is still in hospital; then came the death of Sergeant Dowsett, of the H.A.C., killed in action; and now the members hear with great regret of the death of Wilfred Hoyle, of the H.A.C., who had recently been invalided home. Mr. Hoyle was one of the original members of the Atelier, and one of the few who had obtained the distinction of a First Mention. No one has worked more loyally for the Atelier since its foundation, and his loss will be keenly felt by the Atelier and by all the members who knew him.

THE PASCHAL CANDLESTICK OF LA CAVA DEI TIRRENI, NEAR SALERNO.

By J. Tavenor-Perry.

At the head of a narrow gorge, Swiss in its contours but South Italian in its sky and vegetation, stands the ancient Benedictine Abbey of SS. Trinita, in the little village of Corpo di Cava, with Monte Tinistra and the Sorrento mountains, among which Salvator Rosa lived and studied, towering above it. The Abbey, in spite of the recent political changes of the country, still possesses the most important collection of monastic records to be found in Italy, and its library includes rare charters belonging to Lombardic times, letters of Charlemagne, and the oldest known digests of Lombardic law; while its historical associations, particularly with the early Norman princes, can never be forgotten. In the church and its cloisters are a number of fine ancient sarcophagi and the tombs of Sibylla of Burgundy, Robert Bursa's wife, and of three antipopes. Although the church has been to a great extent rebuilt and



Paschal Candlestick: La Cava.

modernised, it still retains its ancient ambone and its Paschal candlestick, both of which, however, have passed through some vicissitudes. They had been pulled down when the church was restored, but not destroyed, as was the case with some other ambones in the neighbourhood, but the fragments were left for long lying about in various parts of the building, until in 1880, one Joanni Jounelli, a Carthusian brother from Nocera, gathered them together and, with considerable skill for an amateur, supplying the missing parts, once more set them up again. His task was made the more difficult as there had been a reconstruction of the whole some time about the thirteenth century, as may be seen in the candlestick which we illustrate, the different parts of which are of several dates. Of these the solid dark marble plinth belongs to the good brother's restoration of the last century, and the white marble spiral shaft inlaid with mosaics seems to be the work of artists from Monte Cassino in the thirteenth century. The capital and the base standing on four monsters belong to the early part of the twelfth century, and the latter, together with the lion bases of the ambone itself, present a feature common to the buildings both in South and North Italy, wherever Lombard influence was felt, and was doubtless due to the lessons learnt by the first Crusaders from the Hittite sculpture they found in the Kingdom of Antioch.

An explanatory note as to the candlesticks of which this is so pleasing an example is perhaps necessary, as they are an architectural feature quite unknown in our northern Ecclesiology. They are, as their name implies, used for the great candle which was lighted with much ceremony on Easter Eve from a lamp specially kindled on the previous Maundy Thursday, and which was kept burning until Ascensiontide in all churches. In North Italy and throughout Northern Europe the candlesticks were generally made of bronze or other metal, and in such a manner that they could be taken down and put away when not in use. And thus we find that in these countries they were frequently of very great size, as can be seen in the Paschal Candlestick of Milan Cathedral, locally known as the "Tree of the Virgin," which stands 14 ft. high; but far bigger even than that was the great bronze Paschal of Durham, unfortunately lost, but fully described in the "Book of the Rites." It was of latten, and was set up before the high altar on Maundy Thursday and taken down on the Wednesday after Ascension and stored in the north aisle, where it was kept clean by the choirboys. The base had four dragons spreading out as feet, with the images of the four evangelists on them between figures of armed horsemen and beasts. The Paschal spread out in six arms nearly the width of the choir and as high as the vault of the aisles, while above them in the centre rose the seventh candlestick to so great a height that the candle was lighted from a pole through an opening in the highest vault. The Paschal candlesticks of Rome and South Italy were of more modest dimensions but more durable material, and to that fact we owe the preservation of so many; and our illustration gives a fair example of the form which is commonly to be found in the churches of the Abruzzi, Apulia, and the Principato.

London Joint Stock Bank, Lothbury.
Philip Hardwick, Architect.

BANK PREMISES, LOTHBURY.

This interesting building, following the astylar Italian mode of the first half of the last century, is one of the minor works of Philip Hardwick, R.A. Hardwick came of a good architectural stock. His father, Thomas Hardwick, was a classicist of the first rank and a pupil of Sir William Chambers, and through the agency of the son much of the eighteenth-century tradition was handed on to the nineteenth-century pupils.

In this design the treatment of the projecting doorway is striking, but the original iron gates have been removed. An iron grille of good design, similar to those at Euston Station, would have been more appropriate.

VICTORIA AND ALBELT MUSEUM.

The President of the Board of Education has sanctioned an arrangement by which the bronzes presented last autumn to the Victoria and Albert Museum by M. Auguste Rodin will be lent to the Royal Scottish Academy (of which M. Rodin is an hon. member) for inclusion in their annual exhibition in Edinburgh this summer. It is proposed that an exhibition of the work of the Serbian sculptor, Ivan Meshtrovitch, should be held in the Victoria and Albert Museum during the summer, by arrangement with the Serbian Government.

THE BUILDING TRADE.

LABOUR STATISTICS.—II.

CONTINUING our observations about the cost of living of the working classes, a comparison for geographical groups for the year 1912, London (middle zone) being taken as 100 and the rest compared with it, brings out the following interesting points :—

As regards rents, the inner zone of London is 16 per cent. above the middle zone, but the outer zone is 13 per cent. below it.

Comparing the provincial groups with London (middle zone), rents are in all cases below London, *e.g.*, Northern Counties, 34 per cent. ; Yorkshire, 41·5 per cent. ; Lancashire, 43 per cent. ; Midlands, 47·7 per cent. ; Eastern Counties, 46·6 per cent. ; Southern Counties, 36·3 per cent ; Wales, 35·2 per cent. ; Scotland, 38 per cent. ; and Ireland, 48·3 per cent.

The marked difference between London rents and provincial rents of working-class properties seems to need some explaining. Building costs would hardly account for it. Is it cost of land or cost of laying out streets, etc., or the extent and nature of the accommodation afforded ? If these things do not among them account for the difference, is it simply that no higher rents are obtainable in the provinces ? If so, it is a question of demand ; but it is well known that there have been little or no additions to the number of working-class dwellings during recent years, and at present that class of building is practically at a standstill. One would think, then, that the demand would be keen, and in some places one hears that it is so. Why, then, are not rents rising rapidly in the provinces along with all the other necessaries of life ?

Because another table shows for the same districts the percentage changes in rents between 1905 and 1912, and makes it apparent that while in London middle zone rents fall 4 per cent., inner zone 6 per cent., and outer zone 2 per cent., in all the other provincial groups rents rose, but in no case more than 4·3 per cent., ranging from that figure down to 0·4 per cent.

Indeed the lowest percentage advance occurs in the Midlands, which the previous table showed to be the lowest rented district in England, while the highest advance occurred in Wales, which, except the Northern Counties, is the highest rented provincial district.

With the housing problem looming as one of the great social questions of the future it might be worth while to have an expert examination conducted for the purpose of ascertaining the true causes of these differences and how far they are factors in preventing progress.

There is an interesting table of diseases of occupation which gives all the cases reported under the Factory and Workshop Acts and the deaths resulting over the period 1899 to 1913. It is satisfactory to note that, whereas in the former year 1,331 cases of lead, mercurial, phosphorus, arsenic, and anthrax poisoning were reported, these have gradually fallen, presumably as the result of better preventive measures, to 625 in the latter year—a remarkable justification of the legislation which brought it about. Lead poisoning still continues by far the most deadly of the list ; of the figures quoted it accounted for 1,258 cases in 1899 and 535 in 1913.

This is not the whole of the damage done by lead poisoning, however, because in 1913 there were 291 further cases reported in the house-painting and plumbing industry, which are not required to be reported under the Factory and Workshop Acts.

Although the number of attacks has diminished as shown by the figures quoted, there has not been a corresponding diminution of the number of deaths, which have averaged about forty-two per annum for the group cited and about thirty-eight per annum for the house-painting and plumbing industry.

A Home Office Committee has been considering the question of lead poisoning in the latter for some time, and its report may appear any time now, and may be expected to suggest further stringent precautionary measures for adoption wherever white-lead pigments continue to be used.

There is a huge fortune waiting for the man who can put upon the market a non-poisonous pigment equal in efficiency, cost, and durability to white-lead or succeed in rendering white-lead innocuous to human beings, because before long the use of the poisonous pigment would be prohibited by law.

A general summary of industrial accidents is given, from which it appears that in factories, docks, buildings, mines, metalliferous works, quarries, shipping, railways, and other industries for the period 1899 to 1913 an average of over 4,000 workmen a year have been killed, while the number of men injured in the same period runs from 96,369 in 1899 to 222,061 in 1913. The Report points out, however, that this apparently marked increase is chiefly due to increased knowledge of the Acts and more effective enforcement of their provisions. This rapid increase dates from 1905 ; apparently the operatives have been rather slow in appreciating the value of the workmen's compensation legislation. The total paid out by the principal industries for compensation for accidental injuries or deaths to workmen in 1913 was £3,361,650 ; in 1909 it was £2,274,238.

Compared with other industries, the number of men killed in the building trades is small, averaging about 108 per year, but the number returned as injured in 1913 amounted to 2,105. The total receipts for Health Insurance for the period July 15, 1912, to January 11, 1914, amounted to £33,425,306, and the total payments against this came to £17,860,314.

The statistics under the Unemployment Act are a new feature. The total number of days lost in the trades concerned were 7,291,968 ; about a third of these stoppages were for periods not exceeding twenty-four days. Of the total the building trade contributed 4,260,319, which places it easily first in respect of irregularity of employment. Benefit was paid in our trade for 2,541,868 days' unemployment, so that the loss to the workers was met to the extent of rather more than one-half.

Strikes and lock-outs, however, cause a greater loss of time than unemployment ; 11,630,732 days were lost thus in 1913. Of these 28·6 per cent. ended in favour of the workpeople, 25·5 per cent. in favour of the employers, and 45·9 per cent. were compromised ; 127 cases were settled by conciliation and twenty-three by arbitration. It appears that there are 355 local associations of employers of various branches of the building trade in England and Wales, of which 203 are master builders' associations. The totals for Scotland and Ireland are ninety-nine and sixteen respectively. There are sixty-six trade unions in the building trade, with a membership of 248,647 and funds equal to £1 13s. 10d. per member. In 1912, of their total expenditure, 19·3 per cent. was for unemployed, etc., benefit, 3·4 per cent. for dispute benefit, 22·7 per cent. for sick and accident, and 23·3 per cent. for superannuation benefit.

Co-operative credit societies continue to grow healthily. The total share capital in 1898 was £42,245, held by thirty-one societies ; in 1912 it was £169,351, held by 226 societies. It is probable that there would be room in the building trade for this class of credit society among the thousands of small traders which are to be found in it. They ought to be able to buy better and sell to better advantage, and could be helped, too, in other ways.

The total number of persons engaged in the building trades and in works of construction in 1911, as supplied by the last census, was 2,077,030, which is a decline from those of the census of 1901.

THE NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS :

YORKSHIRE BRANCH.

THE monthly meeting of the Executive Council of this Federation was held in the Town Hall, Cleckheaton, on Thursday, March 18. Mr. Lewis Radcliffe (President) occupied the chair, and seventy-two delegates were present.

Government Restrictions on Loans to Public Authorities.

Attention was called to the action of the Treasury in withholding sanctions to public authorities for the raising of loans for public works. In consequence of this notice several Government Departments, having control of applications from public authorities for sanction to raise loans for public works, had intimated that they are only prepared to consider applications for works which can be proved to be absolutely urgent, and that all other applications must in the meantime be suspended. This will interfere, among other works, with the development of several schemes for housing accommodation which were being promoted by public authorities. The building trade will be the industry most affected by this restriction of public works.

Priced Schedules with Tenders.

It was reported that a local authority, in an advertisement inviting tenders for erection of houses, had made the return of the deposit conditional on the receipt of a *bonâ fide* tender and the return of the priced quantities. After representations by the Federation the clerk of the council withdrew the requirement as to priced schedules accompanying tenders, and the subsequent advertisements were amended accordingly.

Contractor to Guarantee Quantities.

It was reported that representations had been made to the architect for some new premises at Bradford, asking for the deletion of a clause in the quantities which provided that ten days will be allowed to the contractor, after the acceptance of his tender, for time to check the measurements, during which time any error discovered in the quantities may be adjusted. After the expiration of that time no claim in respect of any error shall be made.

Attention was called to the objectionable practice of architects taking off their own quantities, and of the totally inadequate descriptions of many items therein.

Operatives' Wages and Cost of Living.

It was reported that several operative societies in different towns had approached the local Master Builders' Association to ascertain whether any consideration could be granted to workmen having regard to the increased cost of living consequent upon the national crisis. It was stated that the subject had been considered by the National Conciliation Board at the annual meeting held on March 8, when a committee was appointed to interview the Treasury on several matters raised at the meeting. After discussion the following resolution was agreed to :—"That in the opinion of this Federation local associations should not grant any increase of wages, for which notice was given in accordance with rules, or grant any special financial consideration by way of bonus or otherwise, but that all applications be at once notified to the Federation for consideration and advice."

Unemployment Insurance.

Members were reminded that it is only in the case of *indentured apprentices* that employers are exempt from payment of unemployment contributions. Instances have occurred in which inspectors from the Labour Exchanges have called on builders to examine the unemployment books, when special attention was given to apprentices. In cases where apprentices are *unindentured* a demand has been made for payment of the unemployment contributions from the commencement of the Act, or of the date of unindentured apprenticeship, and members were warned that they are not only liable to pay these arrears, but are also subject to penalties for not complying with the terms of the Act.

LEICESTER AND DISTRICT BUILDING TRADES EMPLOYERS' ASSOCIATION.

THE following war clauses have been agreed upon between this association and the Leicester Society of Architects :—

To be Inserted in Tenders.

This tender is submitted on the express condition that if the prices or cost of any material necessary or essential to any part of this work advance or be reduced by more than 5 per cent.

over or under the rates at this date current, the schedule of prices for such shall be correspondingly increased or reduced, and (or) the contract amended accordingly, provided that the contractor shall immediately upon signing the contract place his orders for the necessary materials to be delivered when required, and in case it is impossible for merchants or manufacturers to accept orders except for earlier delivery than as required, the architect shall authorise the contractor to deliver on to the site or other site under the control of the architect or the building owner such materials at an earlier date, and shall in this case certify payment for the goods delivered accordingly. Should, however, the contractor neglect to place his orders as above stated, no additions to the contract to be allowed.

To be Added to the Penalty for Non-Completion Clause.

Provided, however, that no action for liquidated damages shall lie against the contractor by reason of his inability to complete the work within the specified time, if such failure to complete can be proved to be consequent on delay in obtaining labour or materials by reason of the state of war existing in Europe or exceptional conditions arising therefrom, or in connection therewith, whether this country is or is not for the time being directly affected.

NATIONAL BOARD OF CONCILIATION FOR THE BUILDING TRADES.

THE eleventh annual meeting of the Board was held at Koh-i-Noor House, Kingsway, London, W.C., on Monday, March 8.

Arising out of the minutes, letters were read *re* the withdrawal of the London Order of Bricklayers, and urging the desirability of that union rejoining the scheme. It was decided to write the London Order thereon.

Election of Officers.

Mr. Jas. Storrs, J.P., Stalybridge, was re-elected Chairman, and Mr. S. Stranks, London, was re-elected Vice-Chairman for the ensuing year. Mr. A. G. White and Mr. F. Chandler, J.P., were re-elected as Employers' Secretary and Operatives' Secretary respectively for the ensuing year.

New Members.

It was reported that the Amalgamated Society of Woodcutting Machinists had been duly admitted nationally to the scheme of conciliation, and were represented at the present meeting.

The Demarcation Scheme.

It was reported that since the Board last met the employers' side had conferred with representatives of branch trade employers' national associations and elected four representatives to form their side of the joint sub-committee which is to elaborate the scheme. A draft scheme had been drawn and sent to the members of the joint sub-committee. It is hoped the sub-committee may have completed its labours and be in a position to make a full report by the next meeting of the Board.

Report on Work of Conciliation Boards.

A report on cases settled by the Conciliation Boards during the two years 1912 and 1913 was considered, of which the following is a summary :—Returns came to hand from eighty-one local and centre boards, and the figures showed that in 1912 more than half the total number of cases were settled by local or centre boards, and in 1913 that two-thirds were so settled. The bulk of those cases were settled by local boards. In about 10 per cent. of the cases stoppages of work occurred previous to settlement by the boards. Of the cases which went to higher boards for appeal only three reached the National Board in 1912 and five in 1913. Of these, in only one case was no decision reached. It must be evident, therefore, that the conciliation scheme is a remarkably efficient organisation for the settlement of disputes in the building trade when it is realised that in 1912, out of forty-two disputes, any or all of which might have led to a strike, there was only one case carried to appeal in which no decision was reached, and that in 1913 out of eighty-one such cases a decision was reached in every case. Had the returns covered the year 1914 the results might have been perhaps still more remarkable.

Applications for Admission to the Scheme.

A deputation was received from the London Master Builders' Association, which desired to know upon what terms the association could become affiliated to the scheme. After their inquiries had been answered, the President of the L.M.B.A. said they were willing to enter the scheme, and a resolution of admission was passed accordingly.

An application was considered from the London branch of the Operative Stonemasons' Society to come under the National scheme, and it was resolved that the branch be admitted.

A similar application was made on behalf of the Amalgamated Society of Carpenters and Joiners (London branch) and the General Union of Carpenters and Joiners (London branch) by the representatives of their respective general unions, and it was resolved that those branches be admitted.

An application for admission to the scheme was received from the United Builders' Labourers' Union, and it was resolved that the union be admitted to membership of the Conciliation Boards wherever working rule agreements exist between branches of the Employers' Federation and the union, subject to the approval of the parties at present affiliated to the scheme.

Other Business.

Some conversation took place as to how apprentices should be dealt with in regard to completing their time after their return from service in the war. It was considered best, however, to postpone consideration of the matter until the war is over.

It was stated that there was a prospect that the operatives would put forward a request for consideration in the matter of their wages in consequence of the increased cost of living due to the war. Some discussion ensued, by which it was apparent that the situation in the building trade is very different from what it is in those trades which are made busy through the war, and that the best chance of meeting the difficulty lay in obtaining a modification of the cost of living through action which it might be in the power of the Government to take. Eventually the following resolution was passed :—"That this board is of opinion, in view of the prospective movement for increased wages, due to high cost of living, also the tendency of the Treasury to restrict the spending powers of local authorities, that it would be in the interest of the building industry to secure an interview with Mr. Lloyd George and Sir George Askwith, to explain to them the seriousness of the position, and try to devise some scheme to avoid a stoppage of work." Afterwards the four officers of the board were appointed to form a deputation.

THE ACQUISITION OF ENEMY PATENT RIGHTS.

THE following list of British patents, which have been granted in favour of residents of Germany, Austria, or Hungary, is furnished in view of the new Patents Acts, which empower the Board of Trade to confer upon British subjects the right to manufacture under enemy patents, *which right, when acquired can be retained after the war*, and is specially compiled for the *Builder* by Mr. Lewis Wm. Goold, chartered patent agent, 5, Corporation-street, Birmingham. It is desirable in the first instance to obtain the latest particulars upon the Patents Register. If any patent listed has been assigned to a non-enemy proprietor, the law does not apply :—

10,815 of 1912.—Gas lamps; supporting. The gas-supply pipe is closed by a gravity ball, cone, or like valve, which is opened by the insertion from below of a nozzle carried by the lamp, and having guide rods connected with a cable for raising and lowering the lamp. The gas supply passes through the nozzle to the lamp: C. Bennefeld, Germany.

10,932 of 1912.—Fanlight operating apparatus. Relates to operating apparatus in which the fanlight is fastened by a spring catch released by a spring-controlled lever operated by a cord, is opened by spring pressure, and closed by a pull on the cord that operates the fastening: J. Schilling, C. Muller, and M. Gierlich, Germany.

10,934 of 1912.—Latches. A latch bolt can be locked by a transverse bolt, which falls by gravity, and can be held inoperative by a pawl: W. Meyer, Germany.

11,182 of 1912.—Shelters. Shelters for public parks, stations, etc., consist of two or more approximately square compartments, each open at one side, the open sides facing in directions at right-angles or opposite to each other, so that whatever the direction of the wind the majority of the compartments are fully or partly protected: G. P. Hossfeld, Germany.

11,267 of 1912.—Centering tools. An instrument for centering blanks or finding the centre of circular holes: M. Eisner, Berlin.

11,373 of 1912.—Chimneys: treating smoke. Smoke, etc., in factory or domestic chimneys is removed by a series of asbestos filters, between which are placed sprayers or receptacles for formic acid or a mixture of formic acid and formalin. Forced or induced draught is used. The lowest filter is preferably near enough to the fire to become hot and to consume most of the soot: H. Munding, Austria.

11,804 of 1912.—Double windows. The lower sashes of a double window are balanced by cords passing over pulleys to counterweights and slide up between fixed guide bars and inner and outer sashes, hinged respectively to the window frame to open in opposite directions: H. Hinker, Austria.

11,950 of 1912.—Water-waste preventers: A. Straub, Germany. Dated February 23, 1912.

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RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur :—

——	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	9	—	9½	9½	—	9	8	6½	6½	6½
Accrington	10	9½	9½	9½	9	9	9½	6½	6½	6½
Altrincham	9½	10	10½	10	8½	10	9	6½	6½	6½
Ashton-under-Lyne	10½	10½	10	10½	9	10	9	6	6	7
Barnsley	9½	9½	9½	9½	9	9	8½	7	7	7
Barrow-in-Furness..	9½	10	9½	9½	9½	9½	9½	7	7	7
Barry	9½	9½	9½	10	—	9	8½	6½	6½	6½
Bath	8½	8½	8½	8	7½	8	7½	5½	5½	5½
Bedford	8	8	8	8½	8	9	6½	5	5	5½
Birkenhead	11	11	11	11½	11	11	9½	7	7	7
Birmingham	10½	10½	10½	10½	9½	10½	9½	7½	7½	7½
Bishop Auckland..	9	9	9	9	10	9	7½	6	6	6½
Blackburn	10	10½	10	9½	9½	10	9½	6½	7	7
Blackpool	10½	9½	9½	9½	8½	9	8½	6	6	6
Bolton	10	10½	10	10½	10	10	9½	6–7	6–7	6–7
Bournemouth	8½	8½	8½	8½	8½	8½	8	6	6	6
Bradford	10	10	9	9½	9½	10	8½	7	7	7
Bridgwater	6½	6½	6½	6½	6½	6½	6	4	4	4
Brighton	9	8½	8½	8½	—	8	7	6	6	6
Bristol	10½	10½	10½	10½	—	10½	9½	7½	7½	7½
Burnley	10	9½	9½	9½	8	9	9½	7	7	7
Burton-on-Trent ..	9	9	9	9	8½	9	8½	6½	6½	6½
Bury	10½	10½	10	9	9½	10	9	6	6	6
Cambridge	9½	9	9	9½	9½	9½	7½	6	6	6
Canterbury	8½	8	8	10	—	8½–9	6½	5	5	5
Cardiff	9½	9½	9½	9½	9½	9½	8½	7	7	7
Chatham	8	9	9	9	9	9	7	6	6	6
Chelmsford	8	7½	8½	9	—	7½	6½	5	5	6½
Cheltenham	8½	8½	8½	8½	—	8½	8	6	6	6
Chester	9½	10	9½	9½	9½	9½	8½	5½	6½-6½	5–5½
Chesterfield	9	9	9	8	9	8½	8½	5½	5½	5½
Colchester	8	8½	8½	9	8	9	6	5½	5½	5½
Coventry	10½	10½	10½	10½	9½	10½	8½	7½	7½	7½
Crewe	7	8	7½	9	8	8	7½	5	5½	6
Darlington	9½	9½	9½	10	10	9	8½	6½	6½	6½
Derby	9½	9½	9	9	9	9	8	6½	6½	7
Doncaster	9½	9½	9	9	9	9	8	6½	6½	7
Dudley	8½	8½	8½	8½	8½	8	7½	5½	5½	5½
Durham	9	9	9½	9	10	9	8½	6	6	6½
East Glamorgan and Monmouthshire Valleys	9½	9½	9½	9½	—	—	8½	6½	6½	6½
Exeter	8	8½	8	8½	7½	7½	7	5½	5½	5½
Folkestone	8½	8½	8½	9	8½	8½	7–7½	6½	6½	6½
Gloucester	8	8½	8½	8	8	8½	8	6	6	6
Grantham	8	8	7½	7½–8	7½–8	7	6½	5	5	5
Grays	—	10	10	—	—	9½	8½	7	7	7
Grimsby	9	9	9	9	9	8	8½	7	7	7
Great Yarmouth ..	8	8	8	—	8	8	6½	5	5	—
Halifax	10	10	9	8½	8½	9	8½	7	7	7
Harrogate	9½	9½	9	9	8	9	8½	6½	6½	6½
Hartlepools	9	10	9½	10	10	10	9	7	7	7½
Hastings	8½	8	8	8½	8	8	7	6½	5½	6½
Hereford	8	8	7½	8½	8	7	6½	5½	5½	5½
Huddersfield	10	9½	9½	9½	10	9	8½	7	7	7
Hull	10½	10	10	10	10	10	8½	7½	7½	7½
Ipswich	8½	8½	8½	9	9	8½	7	5½	5½	5½
Lancaster	10	10	9	9	9	9	9	5½	6	6
Leamington Spa ..	9	9	9	8½	9	8½	8	6	6	6
Leeds	10	10	10	10	9	10	8	7½	7½	7½
Leicester	9½	9½	10	10½	9½	9½	9	7	7	7½
Lincoln	9	8½	8½	9	8	8½	8	6	5½	6
Liverpool	11	11	11	11	10½	11	9½	7	7	7
Llanelly	9½	9½	9½	8½	9	8½	8	5½	5½	5½
London	11½	11½	11½	11½	—	1s.	9	8	8	8
Loughborough	9	8½	8½	9	9	8½	7½	5½	5½	5½
Luton	9½	8½	8½	8½	9	8½	7½	5½	5½	5½
Maidstone	9	9	9	9	9	9	8	6	6	6
Manchester	10	10½	10½	11	10	10	9½	6½	6½	7½
Mansfield	8½	9	8½	8½	—	8½	8	6	6	—
Merthyr Tydfil	9½	9½	9½	9½	8½	9	8	6½	6½	6½
Middlesbrough	9	10	9½	10	10	10	8½	7	7	7½
Newcastle-on-Tyne.	10½	10½	10½	10½	10	10	9	7½	7½	7½
Newport, Mon.	9½	9½	9½	9½	8½	9½	8½	6½	6½	6½
Northampton	9	9	9	9	8½	9	8	6	6	6
Norwich	8	8½	8½	8½	8	8½	7	5½	5½	5½
Nottingham	10	10	10	10½	9½	10	9	7½	7½	8
Oldham	10½	10½	10½	10	9	10	9½	7	7	7½
Oxford	9½	9	9	9	8	9	8	6½	6½	6½
Plymouth	9	9	9	9	9	9	7½	6	6	6
Pontypridd	9½	9	9	9½	9	9	8	6½	6½	6½
Portsmouth	9½	9½	9½	9½	—	8½	7½	7	7	7
Preston	10½	10½	10	9½	9½	10	9½	5½	6	6½
Reading	8½	9	9	9½	—	9	7½	6	6	6
Rochdale	10	10½	10	10	8½	9½	9	7	7	7½
Rochester	8	9	9	9	9	8½	7	6	6	6
Rugby	9½	9½	9½	9½	8	9½	8½	6	6	6
St. Albans	9	9	9	9–10	9	9–10	8	6½	6	6½
St. Helens	9	9½	10	9½	9½	9½	9½	6	6	6
Scarborough	8½	9	8½	8½	8	9	8	6½	6½	6½
Sheffield	10½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Shrewsbury	8½	8½	8½	9½	—	8½	7	5½	5½	5½
Southampton	8½	9½	9½	8½	—	9½	8½	6½	6½	6½
Southend-on-Sea ..	9	9	9	9	P'cework	9	7	6	6	6
Southport	10	10	9½	9½	9½	9½	9½	6½	6½	6½
South Shields	10½	10½	10½	10½	10	8½	9	7½	7½	7½
Stockport	10½	10	10	10½	9	10	8½	6	6½–7	7½
Stockton-on-Tees ..	9	10	9½	10	10	10	9	7	7	7½
Stoke-on-Trent ..	9	9½	9	9	—	8½	8½	6	6	—
Stroud	7½	7½	7½	7½	7½	7½	7	5	5	5
Sunderland	10	10½	10	10	10	9	9	6½	6½	7
Swansea	9½	9½	9½	9½	8½	9	9	6½	6½	6½
Taunton	7	7	7	7	—	6	6½	4½	4½	4½
Torquay	8	8	8	8	8	8	8	6	6	6
Wakefield	9½	9½	9	9½	8½	9	8	7	7	7
Walsall	9½	9	9	9	8½	9	8	6½	6½	6½
Warrington	8½	9½	9½	10	8½	9½	8½	5½–6	6	6 6½
West Bromwich ..	10	10	9½	9½	—	9	8	7	7	7
Wigan	10	10½	9½	9½	9	9½	9½	7	7	7
Windsor	9	9	9	10	—	9	—	6	6	6
Wolverhampton ..	9½	9½	9½	10	8	10	8	6½	6½	6½
Worcester	8½	9	9	9	8½	9	7½	6	6	6
York	9½	9½	9	9½	9½	8½	8	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

11,965 of 1912.—Dust shoots: A. Wedemeyer, Germany. Dated July 7, 1911.

12,018 of 1912.—Dust shoots: A. Wedemeyer, Germany. Dated October 21, 1911. Addition to 11,965 of 1912.

12,019 of 1912.—Reinforced cement and like roofs. A cement or like roof is reinforced by wires or wire-netting, which is tensioned by pressing down the reinforcement between pairs of projecting ribs or bars on the rafters by means of bars and staples or by staples alone: E. Schluter, Germany.

12,165 of 1912.—Gelatine and glue. In order to remove blood, flesh, and hair from shreds or cuttings of hides to be used for making gelatine, glue, etc., they are treated with (1) a short preliminary application of milk of lime; (2) a dilute solution of an acid, preferably hydrochloric; (3) a long steeping in milk of lime. Other suitable acids are phosphoric, formic, and sulphuric: M. Fischel, Vienna. Dated May 22, 1911.

12,324 of 1912.—Artificial wood. Wood waste, such as sawdust, wood-flour, etc., is treated with a sufficiently small quantity of soda or potash lye, so that, on subsequent exposure to carbon bisulphide vapour, only a portion (1 per cent. to 5 per cent.) of the original material is converted into viscose. Water is then added to decompose the viscose, and the resulting gelatinous cellulose serves to bind the whole mass together. After drying, the product is pressed and moulded. A weak solution of soluble glass, glue, sulphite, liquors, etc., may be added to assist in the binding: B. Lach, Vienna.

A NEW WALLPAPER CUTTER.

Mr. Charles Green, jun., has taken out two patents for a hand-operating machine for trimming wallpaper which is likely to be found a very useful labour-saving device, the use and efficacy of which has been demonstrated to us by samples which have been treated. The margins or selvedge are necessary to protect paper, but must be removed before hanging. This used to be done with a pair of shears, which takes a considerable amount of time and is likely to be unsatisfactory in result. In America the paperhanger uses a straight-edge and specially-made knife, and trims after pasting the paper, folding the opposite side in twos or fours, and cutting off the margin very expeditiously. There is a machine of a rotary character, but it is too heavy to take on a job, and the cut edges have to be carefully protected to prevent damage. Mr. Green's patent is somewhat similar except that the paper is grooved by the revolving discs instead of being cut, and can thus be sent on to the job. All that is then necessary is to give the grooved paper a slight knock, when the whole of the margin comes away in a clean line, leaving a clearly cut and well-defined edge, which is quite suitable for butt work.

Further particulars of this invention can be obtained from Mr. W. A. Fuller, 142, Upper Richmond-road, Putney, S.W.

NEW THEATRE, BLOOMSBURY.

The theatre of the Academy of Dramatic Art, situated close to Malet-street, Bloomsbury, is now nearing completion. The building covers a space of 114 ft. by 52 ft., and of this space a portion, 42 ft. by 34 ft., is occupied by the stage, which is bigger than those of many London theatres. It is to be equipped with the latest devices for scene shifting, lighting, etc. The building has a plain brick front on Malet-street. The entrances and exits and the various details of theatre building are very well arranged. Mr. Geoffrey Norman (of Messrs. Swan & Norman) is the architect, and Mr. C. F. Kearley is the general contractor.

TELEPHONE DEPARTMENT, LONDON BRIDGE, S.E.

A large block of offices is being built in Denman-street, London Bridge, for the headquarters staff of the Telephone Department. The architect is Mr. E. Cropper, Works and Public Buildings (Commissioners of his Majesty's Architects' Division), 22, Carlisle-place, Westminster, S.W. The general contractors are Messrs. James Smith & Sons, Ltd., South Norwood, S.E., and the steelwork is by Messrs. Dorman, Long, & Co., Middlesbrough. The sub-basement will contain heating chamber, coal store, etc.; the basement will contain stores, filing-rooms, printing-rooms, stationery, etc.; on the ground floor will be cloakrooms, offices, and engineers' rooms; the first, second, and third floors will be devoted to offices for superintending engineers, clerks, typists, the three plans being practically repeated. The dining-rooms and kitchens will be on the fourth floor, being made accessible by lifts. The estimated cost is about £21,000, exclusive of fittings.

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MERCHANTS AND MANUFACTURERS.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ADDLESTONE.—H.M. Office of Works has accepted the tender of Mr. E. C. Hughes, Albion Works, Wokingham, for the erection of the new Research Institute.

Barnes.—Plans approved:—New roads, Vine Cottage Estate, Mr. E. J. Partridge; alterations and additions, "Market Gardeners," Upper Richmond-road, Mr. Frank J. Fisher; thirty-three houses, Westwood-road, Barnes, Mr. J. P. Matthews; garage, Queen's-ride, Mr. A. E. Brown; additions, "Denmore," Fife-road, Messrs. Eldridge & Son; seven houses, Percival-road, Mortlake, Mr. G. A. Gale; and shed, rear of Rose House, High-street, Barnes, Messrs. Ashwell & Co.

Barnet.—Plans passed by U.D.C.:—Thirteen houses, Chandos-avenue, for Mr. I. Rich; additions, etc., to No. 44, Chandos-avenue, for Mr. I. Rich; and additions, etc., to No. 16, Oakleigh-gardens, for Mr. A. Pilgrim.

Bedford.—Plans passed:—Men's mess room, the Cemetery, for Burial Board; four houses, Dudley-street, for Messrs. Jacobs & Burton; shop front, 49, Howbury-street, for Messrs. Sharp & Son; warehouse, Duck Mill-lane, for Mr. A. Nightingale.

Bexhill.—A plan submitted by Messrs. Tubbs, Messer, & Poulter, on behalf of Earl De La Warr, for a new road between Beaulieu-road and Cooden-drive, has been passed by the T.C.

Birmingham.—A commencement has been made with the building of the new church of St. Germains, Edgbaston. Mr. E. F. Reynolds is the architect, and Messrs. Collins & Godfrey, Tewkesbury, the builders.

Blackrock.—The L.G.B. has sanctioned the borrowing of £1,500 by the U.D.C. for relaying Temple-road with asphalt, and £85 for constructing a sewer. With regard to the application for £13,000 for an electrical system, they require plans and specifications for the generating station in a complete form.

Broadmoor.—Messrs. S. Kavanagh & Co., Surbiton, have secured the contract for the construction of a reservoir at the Asylum.

Calne.—The Wilts C.C. have approved of the plans for alterations at the Isolation Hospital.

Chelmsford.—Having purchased land at the rear of South Primrose-hill for a school, the E.C. is to ascertain from the Government Departments concerned whether the committee would be justified in inviting architects to submit designs for the schools at present.

Chipping Norton.—Plans have been passed for new stables at the rear of the Co-operative Society's property in High-street, and for alterations to the interior of the Oddfellows Hall.

Clitheroe.—Plans have been passed for extensions and alterations to Holmes Mill.

Clydebank.—Permission has been granted to Messrs. John Brown & Co., Ltd., shipbuilders, Clydebank, to erect twenty cottages on ground situated east and west of Cochno-street, Whitecrook, to be built by Mr. John Taylor, builder, Dock-street, Clydebank, at an estimated cost of £7,000.

Coventry.—The E.C. have decided to advertise for tenders for the Technical Institute scheme and accept one subject to the sanction of the L.G.B.

Dundee.—Proposed works:—Forfar-road, addition to caretaker's house, for Dundee School Board; Strathmartine-road, addition to smithy, for Mr. Wm. L. Lindsay. The central improvement scheme, embracing the erection of a city hall, the site of which was gifted, has been before the T.C., when a resolution was passed in favour of the promotion of a provisional order for a loan of £100,000 to build wings of business premises on the ground now being cleared under the Improvement Act.

Edinburgh.—At the Dean of Guild Court warrant was granted to the Postmaster-General to erect a sorting office at West Park-place.

Edmonton.—Mr. A. Monk, Lower Edmonton, has secured the contract for the erection of the new police-station.

Foleshill.—Plans passed by R.D.C.:—Six houses and a shop, Barton-road, Foleshill, for Mr. T. Harris; addition to a picture palace, Bedworth, for Messrs. Whittal & Shute.

Gravesend.—Henley's Telegraph Works Company have decided to make a considerable extension of the tyre factory at their works.

Great Malvern.—For the post-office enlargement the tender of Messrs. J. Evans & Son, Newtown, Malvern, has been accepted by H.M. Office of Works.

Hayes.—Plans passed:—Two houses, Northroad, Miss Salter; drainage of two houses, Cranford-lane, Messrs. W. & S. Philp; drainage of East Lodge, Hayes Park, Lord Hillingdon.

Heaton.—The alterations and additions to the Labour Exchange are to be carried out by Mr. W. B. Cooper, Sunderland.

Hexham.—Plans passed by R.D.C.:—Villa, near Wainwrigg, Main-road, Humshaugh, for Mr. T. H. Short; bungalow, off Main-road, Catton, for Mrs. Dockwrey; iron works, near Bridge End Dye Works, Hexham, for Tyne Metal Company, Ltd., Skinnerburn-road, Newcastle-on-Tyne; a house and post-office, near St. Aidan's Mission, Fourstones, for Mr. W. J. Benson, Newbrough Hall.

High Wycombe.—Plans passed by T.C.:—Additions to factory in Oakridge-road, for Messrs. Wilson, Rae, Pixton, & Co.; stabling, Richardson-street, for Mr. R. L. Smith.

Hougnton.—Plans passed by R.D.C.:—Two houses at Margate-street, Silksworth; and alterations to a lodge at Grindon-close, Silksworth, for Mr. R. Doxford, jun.

Hucknall.—The L.G.B. have held an inquiry into the application of the U.D.C. to borrow £3,427 for laying out Titchfield Park. The work proposed includes a caretaker's house, pavilion, bandstand, etc.

Hythe.—A plan for a cottage for Mr. Oliver, at West Hythe, has been approved.

Ilford.—Mr. J. W. Jerram, Boundary-row, Plaistow, has secured the contract for the extension of the post-office.

Laurencekirk.—The T.C. have passed plans of alterations and additions to what was formerly the Congregational Church, submitted by Mr. Ellis, architect, Stonehaven, on behalf of Mr. Ross, photographer, Stonehaven; and for alterations to property at Charter-square, for Mr. W. Kinnear.

London.—H.M. Office of Works has placed the following contracts:—Erection of new connecting corridor at British Museum, Lavington, Ltd., Lansdown Works, Clapham-road, S.W.; erection of Herne Hill sorting office, Mr. H. Hann, 3, High-street, Collier's Wood, Merton, S.W.; extension of Lee Green telephone exchange, Messrs. E. Proctor & Sons, 326, High-street, Plumstead; fireproof floors at Threadneedle-street Post-office, Siegwart Fireproof Company, Ltd., Thanet House, 231, Strand, W.C. The Metropolitan Police have let the contract for the erection of a section house at Mare-street, Hackney, to Messrs. Ashley & Horner, 8, Aldgate, E.

Long Eaton.—The U.D.C. have approved plans for the construction of an open-air swimming bath at a cost of £1,750.

Manchester.—The Finance Committee of the Corporation are asking the Treasury to allow them to borrow the money needed for the first portion of the great electricity scheme contemplated. Manchester is about to erect a new industrial school at Cheadle Hulme, to cost £38,000, towards which the London C.C. has contributed £10,000.

Melksham.—Plans passed for two cottages in Beanacre-road, for Mr. W. G. Cook, and for extensions at the Avon Indiarubber Works.

Milford.—The Surrey C.C. has appointed Mr. T. W. Aldwinckle, F.R.I.B.A., architect to design and carry into execution the plans for the erection of a sanatorium and hospital on the Sattenham Estate, Milford.

Norwich.—The work of extending the post-office is to be carried out by Messrs. W. Bowers & Co., Hereford.

Paisley.—Warrants granted by Dean of Guild Court:—The Most Rev. Archbishop Macguire, of Glasgow, to remove old buildings to the south of the Catholic school at Carlile-place, New Sneddon-street, to convert League of the Cross rooms into classrooms with fireproof stair, to erect a cookery and laundry block, new manual room and heating room, and play sheds; the trustees of the late Mrs. Janet Fulton or Walker, to erect a boiler-house and other buildings to the rear of 2, George-street; and Mr. Alexander Mather, provision merchant, to build a factory at Greenhill-road.

Rotherham.—The R.D.C. has given approval to a plan of four new roads between Hellaby Bridge and Leslie-avenue, Maltby, for the Maltby Brooklands Estate Company.

Rothwell.—A L.G.B. inquiry has been held relative to the application from the U.D.C. for power to borrow £2,250 for the purpose of establishing a supplementary water supply.

St. David's.—The late Capt. S. Roach has left £1,000 on trust towards the building of a town hall with free public library, reading-room, caretaker's house, and the necessary appurtenances.

Shaftesbury.—A L.G.B. inquiry has been held into the application of the R.D.C. for sanction to borrow the necessary money for carrying out a housing scheme in the parish of Gillingham.

Sheffield.—The late Mr. W. Edgar Allen has left £5,000 for the erection and equipment of a hall near the works of Messrs. Edgar Allen & Co., Ltd., at Tinsley, for the workpeople.

Shrewsbury.—Four acres of land in the parish of Holy Cross is to be purchased by the Shropshire C.C. as a site for a tuberculosis hospital for the reception of advanced cases.

Sleaford.—The Kesteven C.C. have purchased premises in the Market-place as the site for their now combined offices.

Southampton.—Messrs. A. E. Jukes & Son, Southampton, will carry out the extension of the Zinc Printing Building of the Ordnance Survey Office for the Office of Works.

Southend.—The L.G.B. has sanctioned the borrowing by the T.C. of £1,970 for the provision of underground conveniences at Ploughcorner and Elm-road, Leigh, and £2,675 for the purchase of land west of Eastwood-lane for a recreation ground, an electricity sub-station, and the improvement of Eastwood-lane. The Council have decided to apply to the L.G.B. for sanction to the borrowing of £6,022 for the making up or sewering of a number of private streets. Plans have been passed for a cinema in West-street, Prittlewell, for Mr. W. C. Bradley, and a vicarage in York-road, in connection with St. Erkenwald's Church.

Stanley.—Plans passed for alteration to houses third and fourth streets, Quaking Houses, for Messrs. The South Moor Colliery Company, Ltd.

Taunton.—Plans passed:—Enlargement of showroom and of proposed new bedrooms at East Gate House, for Mr. J. P. Sibley; proposed rebuilding of back part of premises at Nos. 43 and 44, North-street, for Mr. A. J. Beare.

Tiverton.—The G.W.R. Company propose rebuilding Balk Bridge, Collompton.

Tunbridge Wells.—On behalf of the L.G.B. an inquiry into the application of the T.C. to borrow £7,520 for extensions at the Electricity Supply Station has been held.

Walton.—Plans approved:—Whiteley Trustees, hall, Whiteley Park Estate; Messrs. Love & Sons, alterations and additions, Church-street; Mr. H. F. Prevost Battersby, motor garage, St. George's Hill Estate.

Waterloo.—An inquiry has been held by the L.G.B. into the U.D.C.'s application for sanction to borrow £598 for the purchase of property for the widening of Crosby-road North, Waterloo, and £7,344 for street improvement in Seaforth-road, Seaforth.

Wellington.—The Shropshire C.C. have decided to purchase a site at Handley for an isolation hospital.

Whittlesey Coates.—The Surrey E.C. have asked Mr. H. Farr Simpson, County Surveyor, to prepare amended plans for the proposed enlargement of the Council school.

Wincanton.—The R.D.C. having applied to the L.G.B. for sanction to borrow £1,900 for works of water supply for the parish of Shepton Montague, a L.G.B. inquiry has been held.

Wombwell.—The U.D.C. have passed plans for two cottages in the Barnsley-road, for Mr. G. Myers.

Yarmouth.—Plans for the erection of seven houses on the Marine-parade, Gorleston, for Mr. W. Gould, are before the T.C.

* See also our list of Competitions, Contracts, etc., on page 301.

GENERAL BUILDING NEWS.

TOOTING BEC ASYLUM.

About two years ago a scheme was put before the Metropolitan Asylums Board for the extension of Tooting Bec Asylum, but it was only about six months ago that a revised scheme was adopted. Bushey Down House was then demolished, and on the site of the mansion and in the grounds the foundations for the new part of the hospital were laid. The architect is Mr. T. W. Aldwinckle, F.R.I.B.A., Denman-street, London Bridge Station, S.E. The work is now in active progress, with Messrs. Charles Wall, Ltd., as general contractors, and it is hoped to complete the new buildings some time next year. The rough cost will be £165,000, exclusive of furniture. The present accommodation is for 1,100 patients, and the new scheme provides for an additional 1,100, making a total of 2,200, exclusive of staff. There will be four new pavilions for females, each pavilion being 250 ft. long and containing two-ward units, with thirty beds in each ward. Adjoining each ward are single wards for observation cases, etc. The three pavilions for males are each 175 ft. long, and contain one-ward units, with thirty-six beds in each ward. Each building will consist of ground, first, and second floors. All the floors will be of reinforced concrete, and the fireproof construction will be by Messrs. Trollope & Colls, Ltd. The building will be faced with red brick and will be quite plain in character, except at the ends facing the common. There will be a verandah on each ground floor, to which patients can be wheeled, and the escape bridges will be used also for sitting-out purposes for those inmates who are not able to be taken downstairs. The escape bridges will be of steel lattice girders, with teak floors covered with Val de Travers asphalte. The warming will be partly by low-pressure hot-water radiators with air inlets and double-faced ward stoves centrally placed with descending flues. There will be automatic lifts throughout. The new buildings will involve certain alterations and additions to the existing asylum. There will be a new nurses' home for 100 nurses and a new residence for the medical superintendent. The boiler-house will be extended, and so will the recreation hall, messrooms, etc., but generally speaking the administrative arrangements will not require to be changed. The bricks are being supplied by Messrs. T. Lawrence & Sons, Bracknell, Berks.

TRADE NEWS.

The Somerset Education Committee have been building new schools for the Langport Council, and the large cement concrete playground has been waterproofed with Pudlo.

The architects who have control over the work at the Hawkmoor Sanatorium have specified large quantities of Pudlo for the concrete and the topping on same.

Under the direction of Mr. Alfred J. Taylor, M.S.A., architect, 18, New Bond-street, Bath, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to the Medical Baths, Torquay.

The new Workhouse Infirmary, Brigg, Lincs, is being supplied with Shorland's double-fronted patent Manchester stoves with descending smoke flues, patent Manchester grates and special ventilators, by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

LAW REPORTS.

OFFICIAL REFEREE'S COURT.

(Before Mr. POLLOCK.)

What are Structural Repairs?

Preston *v.* Ludlow-Bruges.

THIS action, which involved a somewhat novel question as affecting the relationship between lessee and lessor in regard to structural repairs, was before Mr. Pollock, one of the High Court Official Referees, on Friday, March 12.

Mr. Pollock, at the commencement of the hearing, said that, although the amount in dispute was comparatively small (£70 8s.), the case seemed to raise an important question of construction in relation to the covenants of a lease.

Mr. Hugo Young, K.C., with Mr. Costello, were for the plaintiff, and Sir Reginald Acland, K.C., with Mr. Rickets, appeared for the defendant.

From Mr. Hugo Young's statement of the plaintiff's case it appeared that in February, 1910, Mrs. Lizette Henrietta Ludlow-Bruges, of Sandridge, Bromham, Wilts, granted to Mr. Walter Rankin Preston a twenty-one years' lease of Seend Park, near Devizes, an estate which consisted of a mansion-house and about 20 acres of land. By the lease the landlady entered into covenants to maintain the structural portion of the mansion in repair, and the lessee, on his part, undertook to do all minor repairs. The plaintiff said that the lessor had failed to perform her part by neglecting to maintain the roof of the house, as a result of which he had suffered damage and inconvenience, and had had to pay for the repairs himself. There was a counterclaim by the defendant for breaches of covenant, which he (counsel) termed a reprisal, as it was not made until after the action had been commenced, and it related chiefly to the way in which the land had been used and an alleged failure to do ordinary repairs. The counterclaim alleged against the plaintiff that he had taken part of a pasture field into the garden; that he had removed turf from the pastures to turf the lawns, and had, contrary to the custom of the country, sold hay off the estate. It was also alleged that he had constructed a drain from the stables into a pond used for watering cattle, and that he had made a cart road through a plantation into a road leading into the Devizes-road.

In support of plaintiff's case evidence was called as to the cost of the repairs to the roof which had been done by the plaintiff, although, under the terms of the lease, it was the duty of the defendant to have done. Witnesses also spoke to the damage and inconvenience which had resulted from defendant's alleged neglect.

Sir Reginald Acland, K.C., for the defence, raised the question as to what constituted a structure. His contention was that the roof was not part of the structure, and that therefore the tenant was liable to make it good. The structure, he argued, was merely that part of the building by which the roof was supported—that which supported the covering.

The Referee: Do you contend that the covering is not part of the structure?

Sir R. Acland: The slates or tiles are not.

The Referee: It is not a roof without something over it to keep out the weather.

Sir R. Acland: The structure of a roof is that which supports it, and in this case the obligation was that the defendant should maintain the supporting part of the roof and leave it to the tenant to do what was necessary to keep the water out.

The Referee: Supposing the roof were to fall down in consequence of the landlady failing to maintain what you call the structural part?

Sir R. Acland: If it were shown that the damage was consequent upon her neglect, then she would have to make it good. Mrs. Ludlow-Bruges would have to put it up again—to put up the timbers, but not the covering, unless it was shown that the damage was owing to her neglect to maintain. The obligation on the part of the lessor was to maintain the structure, such as it was at the beginning of 1910, at which time it was a roof over one hundred years old.

Evidence was called in relation to the alleged breaches of covenant by the plaintiff.

Mr. Hugo Young, in summing-up the plaintiff's case, dealt with the question of what constituted the structure of a roof, observing that one might as well contend that the crust was no part of an apple-pie, as that the slates were not part of the structure of a roof.

The Referee said that the question was of some importance, and he would therefore take time to consider his judgment.

CHANCERY DIVISION.

(Before Mr. Justice ASTBURY.)

Architect's Cinema Plans.

AN architect's motion to set aside a Registrar's adverse decision upon his claim to fees for plans and negotiations for the building of a cinema theatre at Sydenham came before his Lordship, taking company winding-up business, last week.

The motion was to discharge the Registrar's order in the matter of the Sydenham New Theatre Company, Ltd.

Mr. Simmons represented the architect, and Mr. Ashton Cross appeared for the company.

The company was formed, Mr. Cross stated, to build a cinema theatre. No theatre was actually built, and upon that fact the architect claimed. The company was wound up voluntarily, a voluntary liquidator being appointed. It fell to him, first of all, to deal with the architect's claim, which was for half commission, as the plans were not used, and for other work done. It appeared that undoubtedly an agreement had been made by which the architect was to receive a certain total sum in settlement, but before that sum was paid the architect withdrew his assent from the agreement. The dispute coming before Mr. Justice Neville at this stage, his Lordship found the architect was no longer bound by the agreement, and it was open to him to sue on a *quantum meruit*. That he proceeded to do. His claim was that he had prepared plans, made arrangements in respect of party walls, done work to secure the consent of the County Council, and generally undertaken business which involved a large amount of documentary matter. The liquidator desired to see the papers; some he got from the company and some from other sources. The architect had already received a hundred guineas; he was now claiming a further £147. The inquiry was complicated, and the liquidator felt himself obliged to call in an architect, a skilled man, to assist him with the papers. The liquidator awarded £100 out of the claim for £147, and the architect then asked that the decision of the liquidator should be set aside, and his claim paid in full. In stating his claim again, he increased it. He supposed (counsel remarked) that an architect would inevitably come to think more and more of his work the more he looked at it. When the matter came before the Registrar, the Registrar made the order which was the subject of the present notice of motion. Everything turned on the requirement to examine documents, and the contention raised the important question where the documents should be seen. The architect preferred they should not go out of his office. That was the position he was contending for. The discussion before the Registrar turned on the two questions:—(1) Are the books and papers to be produced by the architect? (2) If so, where?

His Lordship: And the order is that he shall produce his documents to the liquidator.

Mr. Ashton Cross: The architect maintains, "I am not bound to produce my papers. If you can see them, it must be at my office." The liquidator replied that he must have them where he could go through them. There was clear legal authority for saying it was the duty of a claimant to produce his papers. The Registrar decided the architect must submit his plans, specifications, and papers to the liquidator, to enable him to adjudicate upon the claim.

His Lordship observed that the order of the Court had been that the architect was to prove a *quantum meruit*. The architect issued a summons before the Registrar when the liquidator rejected his proof for £147, and eventually the claim got up to £187. It was time this matter was settled, or there was no knowing what it would grow to. Why should not the architect give up the documents and prove his claim?

Mr. Simmons said he wished to do so, but he also wished for the opportunity to produce evidence.

His Lordship: The proper form is to have it struck out if you are not willing to let the liquidator have the documents on which you base your claim. This is going into great expense. Cannot you agree to something—split the difference between the £140 and the £187? I think both sides are probably considerably to blame. You see, the liquidator has already adjudicated on the claim by rejecting it.

Finally counsel consulted, at his Lordship's suggestion, and it was agreed that the order should be rescinded by consent. The architect and the liquidator agreed to appear before the Registrar, the architect undertaking to submit the plans, papers, and specifications on which his claim was based, and have the matter decided in the presence of an architect on either side. All costs were to be in the discretion of the Registrar.

METROPOLITAN ASYLUMS BOARD.

AT the monthly meeting of the Board on Saturday the following matters were dealt with:—

Park Hospital.—The consent of the Local Government Board was received to the Board expending £353 8s. on the reconstruction of the main boiler-flues.

Highdown Sanatorium.—It was resolved that a revised plan of the chapel to be erected at the sanatorium be submitted to the Local Government Board in view of their suggestion that the chapel as at first proposed was too large.

Quantity Surveyors.—The following appointments as quantity surveyors were made:—Erection of a sanatorium at Ellisfield, near Basingstoke, Messrs. W. H. & P. B. Strudwick, 2, New-court, at a commission of 1¼ per cent. on amount of the accepted tender; erection of sanatorium at Copthorpe, near Felbridge, Mr. T. Woodbridge Biggs, 61, Carey-street, at a commission of 1½ per cent. on amount of accepted tender; cleaning and painting works at Grove Hospital, Mr. Louis Jacob, Raymond House, Theobald's-road, at the rate of 2½ per cent. on amount of accepted tender.

North-Eastern Hospital.—The Works Committee submitted a lengthy Report on the question of the partial reconstruction of the North-Eastern Hospital in permanent materials. The Report dealt in detail with a number of suggestions made by the Local Government Board for effecting economies. The first section of the scheme is estimated to cost £60,778, and the architect's suggested modification, which would result in a saving of £2,746. The suggestion of the Local Government Board would, if given effect to, save about £3,946; but the Committee were of opinion that any further economy in building with a view to reduction of cost, which might be effected by amending the plans in the direction suggested by the Local Government Board, would be more than counterbalanced by future administrative and hygienic disadvantages. It was agreed to forward the Report to the Local Government Board with the request that they would no longer withhold their consent to them.

TRADE CATALOGUES.

The North British Rubber Company, of Castle Mills, Edinburgh, send us a little pamphlet entitled "Concerning Belting and Transmission," in which it is pointed out that the quality of the rubber used is all important. Recently this firm had a complaint from a factory that one of their belts had only lasted seventeen years, while two others supplied by them had lasted twenty. The fact that rubber adheres to pulleys much more than leather will recommend it to all power users; it has also the additional advantage of being cheaper. This company introduced rubber belting sixty years ago, and if the material had not sometimes been discredited because inferior rubber and cotton have been used, it would have been exclusively used for belting. The firm make a speciality of conveyer belting in addition to driving belting.

Messrs. Henry Hope & Sons, Ltd., of 55, Lionel-street, Birmingham, have issued a catalogue of patent glazing, which will be found most useful to the architect and contractor, as photographs of different systems of glazing are given, together with scale sections, showing how the glazing bars should be fixed to wood, steel, and concrete. Messrs. Hope's patent fixing shoe is illustrated, by the use of which the necessity for piercing the bar itself is obviated. All of Messrs. Hope's sections are well thought out and admirably adapted to the uses to which they are put.

The British Thomson-Houston Company, of Rugby, issue a pamphlet dealing with their B.T.H. continuous current motors, which are very strongly made and therefore especially useful for duties of an exacting nature. They are specially designed so as to be noiseless in operation, and fitted with carefully designed commutation poles, so that perfect commutation even on heavy overloads is secured. All the motors listed will stand an overload of 25 per cent. for thirty minutes and a momentary overload of 100 per cent. without injurious heating or sparking.

FACTORY, BERMONDSEY.

A new factory is in course of erection at Galleywall-road, Bermondsey, S.E. The buildings are designed by Messrs. Robinson & Roods, surveyors, and the contractors Messrs. Wm. F. Blay, Ltd., Railway House, Dowgate-hill, E.C., and at Dartford, Kent.

List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions, — Contracts, iv., vi., viii., x.; Public Appointments, xxii.; Auction Sales, xxiv. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to assure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

APRIL 21.—**Whitehaven.**—HOUSING SCHEME.—The Corporation invite designs for laying-out of the Coach-road site and erection of houses thereon. The author of the design placed first may be employed as architect, or, if not, will receive a premium of 30 guineas; author of second design will receive 20 guineas, and of the third, 10 guineas. Particulars of the Borough Surveyor, Town Hall, Whitehaven. Deposit, £2 2s.

NO DATE. — **Cheshire.** — COTTAGES. — Messrs. Lever Bros. invite designs for cottages on the Bromborough Estate. Nine premiums are offered. See advertisement in issue of March 19.

NO DATE.—**Stepney.**—MUNICIPAL BUILDINGS.—The Stepney B.C. invite designs for the proposed municipal buildings. Conditions may be obtained from Mr. G. W. Clarke, Town Clerk, Municipal Offices, 15, Gt. Alie-street, Whitechapel, E.

NO DATE. — **Whitehaven.** — HOSPITAL. — The Galemire Joint Hospital Committee invite competitive designs from architects for a small hospital proposed to be erected in their district. Particulars of Mr. E. B. Croasdell, Clerk, Union Hall, Whitehaven

Contracts.

BUILDING AND PAINTING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

MARCH 29. — **Broadstairs.** — PAINTING, ETC.—Painting and other works at Broadstairs Pier for the U.D.C. Specification of Mr. H. B. Langham Bank-chambers, High-street, Broadstairs. Deposit, £2.

MARCH 29. — **Dundee.** — SUB-STATION. — For plaster, plumber, slater, and glazing work in connection with erection of electricity substation for the Corporation. Quantities of Mr. H. Richardson, Engineer, Electricity Department, Dundee.

MARCH 29.—**Edinburgh.**—SORTING OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for the erection of the new Western District Sorting Office, Edinburgh. Quantities at H.M. Office of Works, 3, Parliament-square, Edinburgh. Deposit, £1 1s.

MARCH 29. — **Glasgow.** — PAINTING.—For the painter work required in the City Chambers. Specifications at the Office of Public Works, 64, Cochrane-street, Glasgow.

MARCH 29.—**Harrogate.**—PAINTING.—Painting interior of the Starbech Bath and the public seats in the Valley, Crescent, and Royal Baths Gardens. Specification of Mr. C. E. Rivers, Borough Engineer, Municipal Offices.

MARCH 29. — **Shrewsbury.** — VARIOUS. — (1) Brick urinal, Castle Fields; (2) bath, lavatory fittings, and sundry repairs at No. 3, Claremont-buildings; and (3) painting and decorating the interior of Nos. 3 and 4, Claremont-buildings. Specifications of Mr. A. W. Ward, Borough Surveyor, The Square, Shrewsbury.

MARCH 29. — **Windsor.** — FOUNDATIONS.—Construcion of foundations for a filter house at the waterworks for the Corporation. Specification of the architect, Mr. Herbert Spink, 52, High-street, Windsor.

MARCH 30.—**Crewe.**—PAINTING.—Cleaning and painting at Crewe Memorial Cottage Hospital. Mr. C. H. Pedley, Hon. Secretary, Westminster-buildings, Crewe.

MARCH 30. — **Hammersmith.** — FLOOR. — Removing, storing, and subsequently re-erecting floor at Lime Grove Swimming Bath for the B.C. Specification of Mr. H. Mair, Borough Surveyor, Town Hall, Hammersmith.

MARCH 30. — **Leyton.** — CONVENIENCES. — Construction of underground conveniences at junction of Church-round and Lea Bridge-road for the U.D.C. Quantities of Mr. E. H. Essex, Surveyor, Town Hall, Leyton. Deposit, £10 (note).

MARCH 30. — **Selsey.** — WATER TOWER.—Construction of a water tower or reservoir of 50,000 gallons capacity upon piers 40 ft. above the ground level, to be constructed on the "Kahn" system of ferro-concrete, for the Selsey Water Company. Quantities from Messrs. J. O. Holt & Sons, of 4, West-gate, Chichester. Tenders on other systems of ferro-concrete would be considered if accompanied by plans, specifications, etc.

MARCH 31. — **Bedwellty.**—VARIOUS.—For the following work at the Isolation Hospital:—(1) Reinforced concrete boiler-house; (2) laundry, coals, water-closet, and steps, and draining the two new blocks for the Bedwellty U.D.C. Quantities of Mr. Dan H. Price, Surveyor, Aberbargoed. Deposit. £1 1s.

MARCH 31.—**Cowdenbeath.**—SCHOOL.—Various trades in connection with the erection of new school at Cowdenbeath. Quantities of Mr. C. Campbell, architect, Methil. Deposit, £1 1s.

MARCH 31.—**Falmouth.**—LAUNDRY.—Erection of steam laundry at Greenbank, Falmouth, for Mr. R. W. Langman. Specifications of Mr. C. W. Parkes Lees, architect, Porthpaean House, Lanteglos-by-Fowey.

MARCH 31.—**Golcar.**—HOUSES.—Various trades, except masons, required in the erection of four dwelling-houses in Swallow-lane, Golcar. Quantities of Mr. Arthur Shaw, architect, Golcar.

MARCH 31. — **Lanchester.**—ADDITIONS.—Additions to the administrative block of the Sanatorium, Marden Law, near Lanchester, for the Lanchester Joint Hospital Board. Specifications of Mr. G. T. Wilson, architect, 22, Durham-road, Blackhill.

MARCH 31.—**Leeds.**—PAINTING.—Painting and cleaning at the city hospitals. Quantities at the Steward's Office, Seacroft Hospital, Leeds.

MARCH 31.—**West Hartlepool.**—CONVENIENCES.—Erection of public conveniences at Greenland for the Corporation. Specification of Mr. Nelson F. Dennis, Borough Engineer, Municipal Buildings, West Hartlepool.

APRIL 1.—**Huddersfield.**—SHEDS.—Erection of a shed for sand drying plant and store shed at Bridgefield Depôt, off Leeds-road, Huddersfield, viz.:—No. 1, builders' work (all trades); No. 2, steelwork. Quantities of Mr. K. F. Campbell, Borough Engineer, 1, Peel-street, Huddersfield.

APRIL 3.—**Erith.**—EXTENSIONS.—Erection of a new ward and extensions to the Administration Block at the Erith Sanatorium, Little Heath, Belvedere. Quantities from Mr. Harold Hind, Surveyor, Council Offices, Erith. Deposit, £2 2s.

APRIL 3.—**Keighley.**—PAINTING.—Painting outside wood and iron-work at the Morton Banks Hospital and Sanatorium for the Keighley and Bingley Joint Hospital Board. Quantities of the architects, Messrs. Moore & Crabtree, Town Hall-square, Keighley.

APRIL 3.—**Sawbridgeworth.**—COTTAGE.—Erection of police cottage at High Wych, Sawbridgeworth, for the Hertfordshire C.C. Specification of Mr. J. S. Killick, County Surveyor, Hatfield. Preference given to local builders.

APRIL 8.—**Windsor.**—BATHING BOXES.—Erection of a number of bathing boxes on a piece of land adjoining the Great Western Railway, Clewer, for the Corporation. Specification of the Borough Surveyor, Alma-road, Windsor.

APRIL 8.—**Windsor.**—DEMOLITION.—Demolition of two houses known at Nos. 12 and 13, Distil House-row, River-street, Windsor, for the Corporation. Specification of the Borough Surveyor, Alma-road.

APRIL 8.—**Truro.**—CLOCK TURRET, ETC.—Construction of new clock turret in steel and concrete, new ceilings in Council Chamber and adjoining rooms, new mayor's parlour, muniment room, and storeroom. Specification of Mr. Fredk. A. Barnes, City Engineer, Municipal Buildings, Truro.

* APRIL 9.—**Great Barr Park.**—The Walsall and West Bromwich Joint Committee invite tenders for erection of laundry block, engineering block, and chimney stack.

APRIL 9.—**Walsall.**—LAUNDRY BLOCK, ETC.—Erection of laundry block, engineering block, and chimney stack in Great Barr Park for the Walsall and West Bromwich Unions Joint Committee. Specification of the architect, Mr. Gerald McMichael, A.R.I.B.A., 105, Colmore-row, Birmingham, up to April 1. Schedule for prices from Mr. A. H. Ward, Clerk, 22, Lombard-street, West Bromwich. Deposit, £3 3s.

APRIL 12. — **Swansea.** — SCHOOL.—Erection of the Baptist Well Council School, Swansea, for the Swansea E.C. Quantities of Mr. A. W. Halden, Clerk, Education Department, Grove-place, Swansea. Applications by March 20. Deposit, £10 10s.

APRIL 12.—**Tyrone.**—ADDITIONS, ETC.—Alterations and additions to Dungannon House, and for the erection of a pavilion and medical officer's residence at Dungannon House, Dungannon, Co. Tyrone, for the Tyrone C.C. Quantities of Mr. C. S. Hunter, Quantity Surveyor, Scottish Provident-buildings, Belfast, or of the architect, Mr. J. Hunter, Lisburn.

APRIL 29.—**Glasgow.**—SANATORIUM.—For the wright and joiner works required in connection with the proposed erection of sanatorium and children's home at Southfield, near Mearns, for the Corporation of Glasgow. Specifications at the Office of Public Works, 64, Cochrane-street, Glasgow. Deposit, £1 1s.

NO DATE.—**Barmouth.**—HOUSE.—Building a detached house at Barmouth. Specification of the architects, Messrs. Deakin & Howard Jones, M.S.A., Plas Ynys, Borth, R.S.O.

NO DATE.—**Kendal.**—BUILDING.—Erection of a three-storied building at the works of Messrs. W. Shepperd & Sons, shaft manufacturers, Kendal. Quantities of Mr. M. G. Shaw, architect, 45, Highgate, Kendal.

NO DATE. — **Oswestry.**—PAINTING.—Painting certain of the Cambrian Railway Company's stations between Whitchurch and Oswestry. Specification of the Company's Engineer at Oswestry.

NO DATE. — **Salisbury.** — HALL.—Erecting a memorial hall in Salisbury. Quantities of Messrs. John Harding & Son, architects, 58, High-street, Salisbury.

FURNITURE, MATERIALS, etc.

MARCH 29. — **Ashford.** — ROAD MATERIALS. — Supply to the West Ashford R.D.C. of gravel, flints, and Kentish rag stone. Forms of tender of Mr. Alfred Sims, Surveyor, 3, Queen-street, Ashford.

MARCH 29.—**Guildford.**—MATERIALS.—Supply to the Corporation of road, paving, sewer, and other materials. All particulars, specifications, schedules, and forms of tender of the Borough Surveyor, Mr. E. Young Harrison, Tuns Gate, Guildford.

MARCH 29.—**Manchester.**—MATERIALS.—Supply to the Lancashire and Yorkshire Railway Company of various materials. Particulars of Mr. Waring, Stores Department, Osborne-street, Manchester.

MARCH 29.—**Romford.**—TAR, ETC.—Supply to the Romford U.D.C. of 20,000 gallons of distilled tar or other similar product; 1,200 tons of granite, hand-broken to 1½ in. cube; and 800 tons of granite chippings. Forms of tender of the Surveyor, Council Offices, Market-place, Romford.

MARCH 30.—**India.**—WHITE LEAD.—Supply of 55 tons of moist white lead to the Madras and Southern Mahratta Railway Company. Specification at the offices of the company, 91, York-street, Westminster, S.W. Charge, £1 1s.

MARCH 31. — **Brinscall.** — ROAD MATERIALS. — Supply to the Withnell U.D.C. of broken granite, chippings, and limestone. Forms of tender from Mr. A. Penney, Council Offices, Brinscall, Lancashire.

MARCH 31. — **Maldon.** — ROAD MATERIALS. — Supply to the Corporation of broken granite, granite chippings, and flints. Forms of tender of Mr. Thos. R. Swales, Borough Engineer, Municipal Offices, Maldon.

MARCH 31.—**Wellington.**—ROAD MATERIALS.—Supply to the Wellington (Salop) R.D.C. of 1,000 tons of 2½-in. broken stone and 500 tons of 2½-in. broken slag. Mr. R. Blakeway Phillips, Surveyor, Edgbaston House, Wellington, Salop.

MARCH 31.—**Weymouth.**—MATERIALS.—Supply to the Corporation of ironmongery goods, etc., iron castings, paints, varnish, etc., oils, bricks, cement, lime, sanitary stoneware goods, sewer and drain pipes, etc., timber. Tender forms of Mr. K. J. S. Harris, Borough Surveyor, Municipal Offices, Weymouth.

MARCH 31. — **Wolverhampton.**—MATERIALS.—Supply of paving, sewer, road, and other materials to the Corporation. Forms of tender of Mr. G. Green, Borough Engineer, Town Hall.

APRIL 1. — **Cannock.**—MATERIALS.—Supply to the U.D.C. of road, paving, and other materials. Forms of tender of Mr. R. Blanchard, Engineer, Council Offices Cannock.

APRIL 1.—**St. Mellons.**—ROAD MATERIALS.—Supply to the Magor and St. Mellons R.D.C. of broken limestone and gravel. Forms of tender of Mr. A. H. Rees, Clerk, Union Offices, Queen's-hill, Newport, Mon.

[Those with an asterisk (*) are advertised in this issue.]

FURNITURE, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

APRIL 1.—**Truro.**—MATERIALS.—Supply to the Corporation of road metalling, glazed stoneware gulleys, pipes, etc., granite kerbs, paving and channelling, Portland cement, etc. Forms of tender of Mr. Fredk. A. Barnes, City Engineer, Municipal Buildings, Truro.

APRIL 3.—**Ramsey.**—ROAD MATERIALS.—Supply to the U.D.C. of Ramsey, Hunts, 275 tons 1½-in. tarred slag, 80 tons ½-in. tarred slag, 50 tons broken granite, 200 tons ½-in. granite chips. Mr. Richd. F. Serjeant, Clerk, Ramsey, Huntingdonshire.

APRIL 5.—**Billericay.**—MATERIALS.—Supply to the Billericay R.D.C. of granite, Kentish rag, Kentish flints, gravel, screenings, and sand. Forms of tender from the surveyors, Mr. F. E. Ennals, Shelley-road, Hutton, and Mr. R. J. W. Layland, Billericay.

APRIL 5.—**Tenterden.**—ROAD MATERIALS.—Supply to the Tenterden R.D.C. of granite, or other approved macadam, Kentish ragstone, and beach. Forms of tender of Mr. W. L. C. Turner, District Surveyor, Tenterden.

APRIL 6.—**Swadlincote.**—MATERIALS.—Supply to the Swadlincote U.D.C. of broken granite, granite setts, granite kerbing, Portland cement, limestone asphalt, iron castings, etc., Forms of tender of Mr. A. J. Mason, Town Engineer, Council Offices, Swadlincote.

APRIL 7.—**Kirkburton.**—FURNITURE.—Supplying the furniture required in the new chronic blocks at the Storthes Hall Asylum, Kirkburton, near Huddersfield, for the West Riding of Yorkshire Asylums Board. Particulars of Mr. W. E. H. Burton, architect, W.R. Asylum Board Offices, Wakefield.

APRIL 10.—**Yeovil.**—LORRY, ETC.—Supply to the Corporation of combination motor lorry, steam or petrol driven, provided with 1,000 gallon street watering tank, and interchangeable end-tipping wagon to carry four to five tons. Mr. A. Oddy, Borough Surveyor, Muncipal Offices, Yeovil.

NO DATE.—**Stafford.**—MATERIALS.—Tenders for blue or red engineering bricks, concrete copings, media for percolating filters, and floor tiles for ditto, for the Stafford new Sewage Disposal Works. Particulars of Mr. W. Plant, Borough Engineer, Borough Hall, Stafford.

ENGINEERING, IRON, AND STEEL.

MARCH 29.—**Edinburgh.**—GAS MATERIALS.—Supply to the Edinburgh and Leith Corporations' Gas Commissioners of materials, including pipes, castings, etc. Forms of tender of Mr. Alexander Masterton, Engineer and Manager, Calton-hill, Edinburgh.

MARCH 30.—**Dundee.**—PUMPS, ETC.—Supply to the Dundee Corporation Electricity Department of centrifugal pumps, supply and laying of 750 ft. of 42-in. and 30-in. cast-iron pipes in prepared track. Specifications of the Department, at Dubhope Crescent-road, Dundee. Deposit, £1 1s.

MARCH 30.—**India.**—PIG IRON.—Supply to the Bombay, Baroda, and Central India Railway of pig iron. Specification of Mr. C. Crommelin, Secretary, 110, Bishopsgate, London, E.C. Charge, £1.

MARCH 31.—**India.**—RAILWAY MATERIALS.—Supply to the East Indian Railway Company of (1) brass and copper tubes; (2) helical and volute springs; (3) rolled material for wagons; (4) steel rails and fishplates. Specification of Mr. C. W. Young, Secretary, Nicholas-lane, London, E.C. Charge, £1 each specification.

MARCH 31.—**London.**—ELECTRICAL INSTALLATION.—Electrical installation at the Derington-road Elementary School, Lower Tooting, S.W., comprising about 218 wiring points and 265 lighting points, for the L.C.C. Form of tender, etc., from the Chief Engineer, County Hall, Spring-gardens, S.W. Deposit, £1

APRIL 3.—**Glasgow.**—PIPES.—Supply to the Corporation Water Department of 325 tons of 24-in. cast-iron pipes. Forms of tender of Mr. J. R. Sutherland, Engineer, Water Department, 45, John-street.

APRIL 6.—**Aberdare.**—ELECTRICAL MACHINERY.—(*a*) Construction and erection of motor generators or converters; (*b*) Construction and erection of one high tension switchboard and low tension panels, and the supply of one high tension feeder pillar, for the Aberdare U.D.C. Specification of Mr. D. Llewellyn Griffiths, Clerk, Town Hall, Aberdare, Glam. Deposit, £1 1s.

APRIL 6.—**Bray.**—STORES.—Supply to the Bray U.D.C. of general stores, and for stores required at Council's Electric Light Works. Schedules of Mr. D. Mullally, Clerk, Town Hall, Bray.

APRIL 7.—**Chesterfield.**—RAILWAYS.—Construction of a branch railway to connect Rufford Colliery for the Mansfield Railway Company. Quantities of Mr. R. Elliott-Cooper, Engineer, 15, Dean's-yard, Westminster, S.W. Deposit, £10 10s.

APRIL 12.—**Edinburgh.**—BOILERS.—Supply to the Corporation's new electricity supply station at Westbank, Portobello, of water-tube boilers. Specification from the Engineer, Dewar-place, Edinburgh. Deposit, £2 2s.

APRIL 13.—**Newcastle-on-Tyne.**—HEATING INSTALLATION.—Installation of a low pressure hot-water heating apparatus to the Rutherford Technical College Extension for the E.C. Schedules of details from the architects, Messrs. Knowles, Oliver, & Leeson, Collingwood-street, Newcastle-upon-Tyne. Deposit, £3 3s.

APRIL 17.—**Ashington.**—GAS WORKS.—Erection of (1) steel-framed retort house, coal store, purifier house, and steel chimney; (1A) continuous vertical retort house, retort bench, and coal store complete; (2) retort bench, regenerator settings, and retort ironwork; (3) boiler-house, stores, offices, and concrete foundations; (4) concrete gasholder tank and tar and liquor tanks; (5) gasholder; and the supply of various machinery. Particulars of Messrs. W. A. Valon & Son, Caxton House, Westminster.

APRIL 28.—**Australia.**—ELECTRIC LIGHTING MATERIAL, ETC.—Supply to the Victoria Railway Commissioners of (1) electric lighting material for car repair shops at Jobmont, and (2) trucks of 4,000lb. capacity driven by storage batteries. Copy of specifications at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

APRIL 28.—**Greece.**—TELEPHONES.—Supply and installations of (1) a central exchange and telephone system at Salonica; (2) a central exchange at Athens, and (3) telephone apparatus and accessories for the Greek Ministry of Communications. The "Government Gazette" containing conditions may be consulted at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

MAY 19.—**Spain.**—TRAMWAY.—Tenders will be received at the "Dirección General de Obras Públicas," Madrid, for the construction and working for a period of sixty years of a steam tramway from Alcira to Carcagerte.

ROAD, SANITARY, AND WATER WORKS.

MARCH 30.—**Cardiganshire.**—ROADS.—Strengthening and surfacing the Cardigan to Cenarth main road from Manorafon to Cenarth with Welsh granite and tar-spraying for the Cardiganshire C.C. Quantities of Mr. D. Davies, County Surveyor's Office, Brynhyfryd, Felinfach S.O.

MARCH 30.—**Tottenham.**—WOOD PAVING.—Laying about 1,600 square yds. of wood paving on concrete foundation. Particulars of Mr. W. H. Prescott, Engineer, Town Hall, Tottenham. Deposit, £5.

MARCH 31.—**Hebburn.**—SEWER.—Laying a 24-in. pipe sewer, with manholes complete, from South Back Dumhope-street to South Back Hedgeley-road, Hebburn, on the Carr Ellison Estate. Specification of Mr. C. McGhie, agent, 38, Collingwood-buildings, Newcastle-on-Tyne.

MARCH 31.—**Manchester.**—PAVING.—Artificial flagging to the main drive of institution at Crumpsall, Manchester, for the Manchester B.G. Quantities of Mr. A. J. Murgatroyd, architect, 23, Strutt-street, Manchester. Deposit, 10s.

APRIL 3.—**Keighley.**—ROADS.—Preparing for and covering with tar macadam of about 700 square yds. of roads and footpaths at the Sanatorium, Morton Banks, for the Keighley and Bingley Joint Hospital Board. Specifications of the architects, Messrs. Moore & Crabtree, Town Hall-square, Keighley.

APRIL 5.—**Church.**—SEWER.—Laying 9-in. sewer in Back Drill Hall-lane for the U.D.C. Specification of Mr. J. B. Fallowfield, Surveyor, Council Offices, Church, Lancashire.

APRIL 6.—**Glasgow.**—ASPHALTING.—Paving of several streets in the city with compressed rock asphalt. Specifications at the Office of Public Works, 64, Cochrane-street.

APRIL 7.—**Ruislip-Northwood.**—SEWERAGE.—For supplementary works of sewage disposal to be carried out at the Council's Purification Works in the parish of Ruislip. Quantities of the Consulting Engineer, Mr. H. Howard Humphreys, 28, Victoria-street, Westminster. Deposit, £3 3s.

APRIL 7.—**West Bretton.**—ASPHALTING.—Asphalting of the playground at West Bretton Council School for the West Riding E.C. Specifications from Mr. Benj. Sheard, Divisional Clerk, West Riding Education Offices, Northgate, Wakefield.

APRIL 8.—**Uxbridge.**—SEWERAGE WORKS.—Construction of a small sewerage scheme at Harefield, Middlesex, for the Uxbridge R.D.C. Quantities of the Engineer, Mr. John Wm. Harrison, Corn Exchange, Uxbridge.

APRIL 10.—**Sherborne.**—SEWAGE MEDIA.—Supply into the three circular filter beds of carboniferous limestone media for the Sherborne U.D.C. Specifications from the Engineers, Messrs. Dodd & Dodd, County-chambers, Corporation-street, Birmingham. Deposit, £2 2s.

APRIL 19.—**Grays.**—SEWERAGE WORKS.—Construction of about four miles of stoneware and iron sewers of 9, 12, and 15 in. diameter, etc., and the construction of an engine-house, with screen chambers and suction tank, together with about 1¼ miles of 12-in. cast-iron pumping main, for the Thurrock, Grays, and Tilbury Joint Sewerage Board. Specification, etc., of Mr. G. Midgley Taylor, Civil Engineer, Caxton House, Westminster, S.W. Deposit, £5.

Public Appointments.

* MARCH 23.—ENGINEERING ASSISTANT.—The County Borough of Dewsbury invite applications for the above temporary post. Salary not stated.

* MARCH 31.—ARCHITECT'S ASSISTANT.—The Derbyshire E.C. invite applications for the above temporary post. Salary, £120 per annum.

* MARCH 31.—ASSISTANT HANDICRAFT INSTRUCTOR.—The L.C.C. invite applications for the above temporary post. Salary, £100 per annum.

* APRIL 7.—SURVEYOR.—Applications are invited for the post of Diocesan Surveyor for the Diocese of Ely.

* MAY 10.—CHAIR OF CIVIC DESIGN.—The Council of the University of Liverpool invite applications for the above appointment. Salary, £400 per annum.

Auction Sales.

* APRIL 7.—**Finchley.**—Mr. H. W. Smith will sell by auction, on the premises, the stock of a general builders' merchant.

* APRIL 13.—**Gloucester.**—Messrs. Burton, Knowles, & Co. will sell by auction the stock, timber, plant, machinery, buildings, etc., of a timber merchant.

[Those with an asterisk (*) are advertised in this issue.]

PATENTS.

APPLICATIONS PUBLISHED.*

25,705 of 1913.—**James Gregory Galley:** Securing devices for ventilators, casements, fanlights, and other hinged windows.

25,825 of 1913.—Samuel Walter Wilkinson and Cohune Machinery Syndicate, Ltd.: Apparatus for washing and grading gravel, sand, and the like.

26,812 of 1913.—**Howard Marshall Batson:** Seat-guards for closets.

3,897 of 1914.—Lionel George John Bratt and John Alexander Getty: Domestic firegrates.

3,924 of 1914.—David Beards, Enoch Beards, David Beards, jun., and Albert Charles Beards, trading as David Beards & Sons: Latching bolts of latches and locks.

4,156 of 1914.—**Robert Leggott and W. & R. Leggott, Ltd.:** Pivoted casement windows.

4,424 of 1914.—Henry Melancthon Pritchard: Construction of doors.

4,811 of 1914.—Henry Luis Lewen: Manufacture of plates for building purposes.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

4,925 of 1914.—Charles Henry Wragg and John Brown & Co., Ltd.: Grinding-plates used in tubular ball-mills, and the like, for grinding cement, clinker, and similar materials.

4,928 of 1914.—Thomas George Park and Francis Rowley Hill: Manufacture of artificial marble.

5,130 of 1914.—Arthur William Chapman: Guards and the like for locks.

5,203 of 1914.—Frank Fearne Neall: Ladders.

5,242 of 1914.—Joseph Hay Amies: Cement.

5,295 of 1914.—Oscar John Martinson: Means for moving heavy machinery on rough or soft ground.

5,914 of 1914.—Charles Mathias Eberling: Machinery for the manufacture of bricks, blocks, tiles, and the like from plastic materials.

6,573 of 1914.—Turner Brothers, Ltd., and Harold Rupert Turner: Structures of insulating or fire-resisting material.

6,671 of 1914.—Thomas William Ridley: Concrete piles.

8,570 of 1914.—George Hall: Device for opening and closing fanlights and the like.

9,926 of 1914.—Rudge-Whitworth, Ltd., and Henry Leonard Heathcote: Treatment of iron or steel for the prevention of oxidation or rust.

11,388 of 1914.—Hugh Lloyd Jones: Step-ladders or the like.

12,188 of 1914.—William Harold Kemp: Waterproof, dampproof enamel distemper for walls, ceilings, woodwork, iron, and the like.

13,161 of 1914.—Samuel Hare: Underground conveyors.

14,071 of 1914.—Elias Ruscoe: Windows.

15,476 of 1914.—Robert Henry Davis: Apparatus for enabling persons to work in irrespirable atmosphere.

15,558 of 1914.—Charles Wolfe Blue: Tower derricks.

15,956 of 1914.—Vicomtesse Alice Vilain XIV., *née* De Bie de Westvoorde: Building bricks or blocks.

17,474 of 1914.—Sydney Eric Aspland: Scaffold ties.

OFFICES, FINSBURY-CIRCUS, E.C.

A large site in Finsbury-circus, from the London Institution to Bread-street-place, has been cleared by Messrs. Gude & Son, Clapton, N.E. Here will be built a large block of offices to be occupied partly by a prominent oil firm. The architects are Messrs. Gordon & Gunton, Finsbury House, Blomfield-street, E.C., and the general contractors, who are now at work on the foundations, are Messrs. George Trollope & Sons and Colls & Sons, Coleman-street, E.C.

THE COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held on the 18th inst. at the Guildhall, when the following amongst other matters were dealt with:—The Remembrancer reported the appointment of a Committee by the President of the Local Government Board "to consider the law and regulations relating to the construction and use of road locomotives and heavy motor-cars in Great Britain, and to report what amendments, if any, are desirable." The matter was referred to the Streets, the County Purposes, and the Police Committees.—Mr. W. H. Thomas moved that the Police Committee should consider and report as to the desirability or otherwise of reconstructing or enlarging the offices in Old Jewry. He said that the present quarters were inconveniently overcrowded.—Alderman Sir John Bell, Bart., Chairman of the Police Committee, pointed out that a Sub-Committee were already considering the matter. The ratepayers, however, must be considered, and there was no present intention of rebuilding.—Mr. Hepburn said he did not think that this was a time for spending money. There was no seconder to Mr. Thomas's motion, and it was therefore lost.

NEW COMPANIES.

THE undermentioned particulars of new companies recently registered are taken from the Daily Register compiled by Messrs. Jordan & Sons, Ltd., company registration agents, Chancery-lane, W.C.:—

SYME & DUNCAN, LTD. (139,596), 22, Blakeney-road, Beckenham, Kent. Registered March 10. To acquire business of Syme & Duncan, builders and contractors, carried on at 22, Blakeney-road, Beckenham, Kent, and to carry on business of builders, contractors, shopfitters, plumbers, brickmakers, architects, surveyors, etc. Nominal capital, £2,000 in 1,500 £1 5 per cent. Cumulative Preference shares and 500 £1 Ordinary shares.

B. MASON & SONS, LTD. (139,599). Registered March 11. Iron, steel, and metal founders, mechanical engineers, manufacturers of machinery, etc., toolmakers, woodworkers, builders, contractors, painters, electrical engineers, gas engineers, colliery proprietors, miners, etc. Nominal capital, £8,000 in £1 shares.

POPLAR ESTATE COMPANY, LTD. (139,586). Registered March 9. To purchase or otherwise acquire land and to cultivate, use, lay out, or develop same as a building estate. Nominal capital, £2,000 in £1 shares.

PATELEY QUARRIES, LTD. (139,574), Prudential-buildings, 20, Park-row, Leeds. Registered March 8. Quarry masters and stone merchants, and to prepare for use all kinds of stone, and to carry on business as road and pavement workers and repairers, manufacturers of and dealers in lime, cement, mortar, concrete, and building material of all kinds, and for this purpose to acquire the Scotgate Ash Quarries, Pateley Bridge, Yorks. Nominal capital, £3,000 in £1 shares.

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

Lead and oil prices have been advanced since our last issue.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.
Per 1000 Alongside, in River.	
Best Stocks	1 18 0
Picked Stocks for Facings	2 12 0
Per 1000, Delivered at Railway Depôt.	
Flettons	1 14 0
Best Fareham Red	3 12 0
Best Red Pressed Ruabon Facing	5 0 0
GLAZED BRICKS—	
Best White, Ivory, and Salt Glazed Stretchers	13 0 0
Headers	12 10 0
Quoins, Bullnose and 4½ in. Flats	16 10 0
D'ble Str'tch'rs	18 10 0
Best Blue Pressed Staffordshire	3 15 0
Do. Bullnose	4 0 0
Best Stourbridge Fire Bricks	4 0 0
Double Headers	15 10 0
One Side and two Ends	19 10 0
Two Sides and one End	20 10 0
Splays and Squints	18 0 0

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	7 6	per yard, delivered.
Thames Ballast	6 0	" " "
Best Portland Cement	38 0	per ton, "
Best Ground Blue Lias Lime	21 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 7½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 6½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	2 10
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7
1½ in. to 2 in. ditto, ditto	0 6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	
Scappled random blocks	3 0
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
8 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20 × 10 best blue Bangor	13 5 6	20 × 12 ditto	14 5 0
20 × 12 ditto	14 7 6	16 × 8 ditto	7 0 0
20 × 10 1st q'lity ditto	13 0 0	22 × 10 best blue Portmadoc	12 12 6
		16 × 8 ditto	6 10 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Hartshill" brand, plain sand-faced (per 1000)	45 0
Hip and Valley (per doz.)	3 7	Do. pressed (per 1000)	42 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	47 6
Do. Ornamental (per 1000)	52 6	Hip (per doz.)	4 0
Hip and Valley (per doz.)	4 0	Valley (per doz)	3 6
Best Ruabon red, brown, or brindle (Edw'ds) (pr 1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental (per 1000)	60 0	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	19 0 0 ..	20 12 6
Deals: best 3 in. by 9 in.	19 0 0 ..	20 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	17 15 0 ..	19 0 0
Battens: best 2½ in. by 6 in. and 3 in. by 6 in.	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in.	16 0 0 ..	17 10 0
2 in. by 4½ in. and 2 in. by 5 in.	15 0 0 ..	16 10 0
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"
Fir timber: best middling	At per load of 50 ft.	
Memel (average specification)	6 15 0 ..	7 15 0
Seconds	6 0 0 ..	6 10 0
Small timber (8 in. to 10 in.)	5 5 0 ..	5 10 0
Small timber (6 in. to 8 in.)	4 10 0 ..	5 0 6
Swedish balks	4 0 0 ..	4 10 0
Pitch-pine timber (30 ft. average)	8 5 0 ..	9 0 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in.	33 15 0 ..	35 0 0
3 in. by 9 in.	31 15 0 ..	33 0 0
Battens, 2½ in. and 3 in. by 7 in.	23 7 6 ..	24 7 6
Second yellow deals, 3 in. by 11 in.	27 5 0 ..	28 5 0
Do. 3 in. by 9 in.	25 5 0 ..	26 5 0
Battens, 2½ in. and 3 in. by 7 in.	19 0 0 ..	20 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	20 2 6 ..	21 2 6
Battens, 2½ in. and 3 in. by 7 in.	17 10 0 ..	18 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	29 10 0 ..	31 0 0
Do. 3 in. by 9 in.	25 5 0 ..	26 5 0
Battens	19 5 0 ..	20 5 0
Second yellow deals, 3 in. by 11 in.	21 10 0 ..	23 0 0
Do. 3 in. by 9 in.	20 5 0 ..	21 10 0
Battens	17 10 0 ..	18 10 0
Third yellow deals, 3 in. by 11 in.	17 15 0 ..	18 15 0
Do. 3 in. by 9 in.	17 5 0 ..	18 5 0
Battens	17 0 0 ..	17 10 0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	At per standard. £ s. d.	£ s. d.
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	22 10 0 ..	24 0 0
First white deals, 3 in. by 9 in.	21 0 0 ..	22 10 0
Battens	18 0 0 ..	19 0 0
Second white deals, 3 in. by 11 in.	20 0 0 ..	21 0 0
Second white deals, 3 in. by 9 in.	19 0 0 ..	20 0 0
Battens	17 10 0 ..	18 10 0
Pitch-pine deals	34 0 0 ..	35 0 0
Under 2 in. thick extra	0 10 0 ..	1 0 0
Columbian or Oregon Pine, best quality	28 0 0 ..	29 0 0
Yellow Pine—First, regular sizes	57 0 0	upwards.
Oddments	39 0 0	"
Seconds, regular sizes	43 10 0	"
Oddments	37 0 0	"
Kauri Pine—Planks per ft. cube	0 6 9 ..	0 7 6
Oak Logs—		
Large, per ft. cube	0 5 0 ..	0 6 0
Small " "	0 4 0 ..	0 5 0
Wainscot Oak Logs, per ft. cub	0 10 6 ..	0 12 6
Dry Wainscot Oak, per ft. super, as inch	0 0 11 ..	0 1 3
¼ in. do. do.	0 0 10 ..	0 1 0
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 0 11 ..	0 1 4
Selected, Figury, per ft. super, as inch	0 1 6 ..	0 2 6
Cuba Mahogany	0 1 6 ..	0 2 6
Dry Walnut, American, per ft. super, as inch	0 0 11 ..	upwards. 0 1 3
French, "Italian," Walnut	0 0 11 ..	0 1 6
Teak, per load (Rangoon or Moulmein)	28 0 0 ..	34 0 0
Do., do. (Java)	24 0 0 ..	27 0 0
American Whitewood planks, per ft. cube	0 6 6 ..	0 7 6
Prepared flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 18 0 ..	1 0 0
1 in. by 7 in. yellow, planed and matched	0 18 0 ..	1 0 0
1¼ in. by 7 in. yellow, planed and matched	1 2 0 ..	1 5 0
1 in. by 7 in. white, planed and shot	0 17 6 ..	1 0 0
1 in. by 7 in. white, planed and matched	0 18 0 ..	1 0 0
1¼ in. by 7 in. white, planed and matched	1 2 0 ..	1 5 0
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards	0 14 6 ..	0 16 6
1 in. by 7 in. " "	0 18 6 ..	1 1 0
¾ in. by 7 in. white " "	0 14 6 ..	0 16 6
1 in. by 7 in. " "	0 18 6 ..	1 1 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	9 10 0 ..	10 10 0
Compound Girders, ordinary sections	12 0 0 ..	13 0 0
Steel Compound Stanchions	13 0 0 ..	15 0 0
Angles, Tees, and Channels, ordinary sections	12 0 0 ..	13 0 0
Flitch Plates	12 0 0 ..	13 0 0
Cast Iron Columns & Stanchions, including ordinary patterns	9 0 0 ..	10 0 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	9 10 0 ..	10 0 0
Staffordshire Crown Bars, good merchant quality	9 15 0 ..	10 5 0
Staffordshire "Marked Bars"	11 10 0 ..	—
Mild Steel Bars	9 15 0 ..	10 5 0
Hoop Iron, basis price	10 10 0 ..	—
" " Galvanised	18 10 0 ..	—
(And upwards, according to size and gauge.)		
Sheet Iron Black—		
Ordinary sizes to 20 g.	11 0 0 ..	—
" " 24 g.	12 0 0 ..	—
" " 26 g.	13 10 0 ..	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16 0 0 ..	—
Ordinary sizes to 22 g. and 24 g.	16 10 0 ..	—
Ordinary sizes to 26 g.	17 10 0 ..	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	18 10 0 ..	—
" " 22 g. and 24 g.	19 0 0 ..	—
Ordinary sizes to 26 g.	20 0 0 ..	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	15 0 0 ..	—
Ordinary sizes, 22 g. and 24 g.	16 0 0 ..	—
Ordinary sizes, 26 g.	17 0 0 ..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	13 0 0 ..	—
Best Soft Steel Sheets, 22 g. & 24 g.	14 0 0 ..	—
Best Soft Steel Sheets, 26 g.	16 0 0 ..	—
Cut Nails, 3 in. to 6 in.	13 0 0 ..	13 10 0
(Under 3 in., usual trade extras.)		

LEAD, &c.

	Delivered in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 4 lb. and up	28 0 0 ..	—
Pipe in coils	28 10 0 ..	—
Soil pipe	31 10 0 ..	—
Compo pipe	31 10 0 ..	—

NOTE—Delivery in country in not less than 5 cwt. lots 1s. per cwt. extra.

ZINC—	In casks of 10 cwt. £ s. d.	£ s. d.
Sheet	65 0 0 ..	—

LEAD, &c. (*Continued*).

Delivered in London.

		£ s. d.	
COPPER—			
Strong Sheet	per lb.	0 1 5 ..	—
Thin „	„	0 1 7 ..	—
Copper nails	„	0 1 5 ..	—
Copper wire	„	0 1 5 ..	—
BRASS—			
Strong Sheet	„	0 1 4 ..	—
Thin	„	0 1 5 ..	—
TIN—English Ingots	„	0 1 10 ..	—
SOLDER—Plumbers'	„	0 0 11 ..	—
Tinmen's	„	0 1 2 ..	—
Blowpipe	„	0 1 4 ..	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	6½d.	26 oz. fourths	6¾d.
„ fourths	5½d.	32 oz. thirds	8½d.
21 oz. thirds	6½d.	„ fourths	7½d.
„ fourths	6¾d.	Fluted Sheet, 15 oz.	5¾d.
26 oz. thirds	7½d.	„ 21 oz.	6½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

⅛ Rolled plate	3½d.
3/16 Rough rolled and rough cast plate	3¾d.
¼ Rough rolled and rough cast plate	4½d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	5½d.
Ditto, tinted	6½d.

* Not less than two crates.

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 3 0
„ „ „ in barrels	„	0 3 1
„ „ „ in drums	„	0 3 3
Boiled „ „ in barrels	„	0 3 3
„ „ „ in drums	„	0 3 5
Turpentine in barrels	„	0 3 4
„ in drums	„	0 3 7
Genuine Ground English White Lead, (In not less than 5 cwt. casks.)	per ton	32 0 0
Red Lead, Dry	per ton	30 0 0
Best Linseed Oil Putty	per cwt.	0 10 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 9
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 6
French and Brush Polish	0 10 0

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

Austrian
RUSSIAN and JAPANESE
PRIME DRY
WAINSCOT **Oak**
SYDNEY PRIDAY,
KING WILLIAM HOUSE, 2a, EASTCHEAP, LONDON, E.C.
Depot: Wainscot Sheds, Millwall, E. *T.N.: Avenue 667.*

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

TENDERS.

GOOD FRIDAY WEEK.—In consequence of the Easter Holidays, we go to press a day earlier than usual next week, the *Builder* being published on Thursday. All communications must reach the Editor by *first post on Tuesday morning.*

* Denotes *accepted.* † Denotes *provisionally accepted.*

BARNSLEY.—The Town Council have accepted the following tenders for the erection of the new Town Hall:—

Excavator, Bricklayer, and Mason: G. Haigh, Barnsley	£11,180 0
Carpenter and Joiner: C. Smith, Barnsley	3,480 0
Concreter and Asphalter: T. Lindley, Barnsley	2,470 0
Plumber and Glazier: E. Broley, Barnsley	2,440 0
Plasterer: G. Dobson, Hunslet, Leeds	1,728 0
Painter: Higginbotham, Idle, Bradford	320 0
Iron and Steel Founder: Robinson & Kershaw, Manchester	197 10
Slater: Dawber, Townsley & Co., Barnsley	149 10

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BURTON-ON-TRENT.—Supply of pipes for new rising water main, for the Corporation:—
Stanley Ironworks Co., Ltd., Chesterfield* £17,578 5

CHESTER-LE-STREET.—Private street works at Sunniside, for the Urban District Council:—
G. Dyson, Pelton Lane Ends* £1,471 8 11

CHESTER-LE-STREET.—Private street works at Eighton Banks, for the Urban District Council:—
C. B. Smith, Eighton Banks* £689 4 9

ETON.—Extension of Mill-lane drainage, Gerrards Cross, for the Eton Rural District Council:—
Langley & Johnson, Slough* £128 6

HELSTON.—For restoration of laundry (destroyed by fire), for the Helston Board of Guardians:—

		Extras.
Eva & Son	£119 10 6	£7 0 0
J. H. White	142 12 0	6 17 6
Richards & Trezise, Helston*	124 10 0‡	—

‡ Inclusive of extras.

READING.—Constructing a new timber bridge across the Portman Brook on the land adjoining the institution, for the Board of Guardians:—

M. E. Fitt	£137 0	G. Allaway & Co.	£112 0
G. H. Tucker	135 0	G. A. Allen & Sons	109 9
W. Fenton, Son & Co.	117 10	Collier & Cattley, Ltd.*	108 0
O. Phillips & Son	116 0		

WEST ASHFORD.—For alteration to the new Children's Homes, at Rowton House, Charing, for the West Ashford Board of Guardians:—

E. J. Bowles	£500 0 0	W. Shippam	£422 0 0
Sanders & Co.	466 19 10	H. Knock	417 10 0
D. Godden & Sons	466 0 0	T. S. Gwinnett*	375 0 0
S. H. Howland.	461 10 0		

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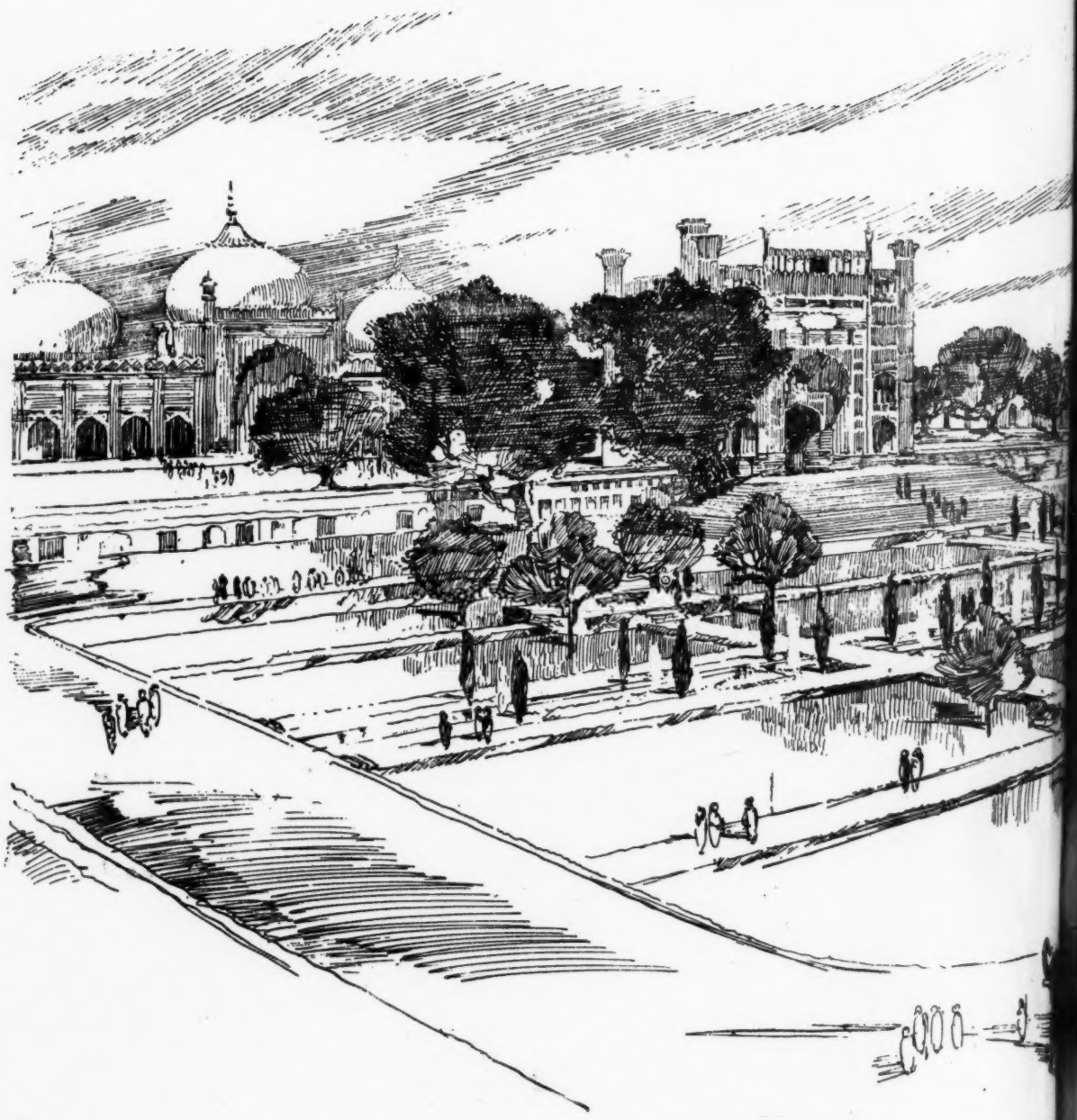

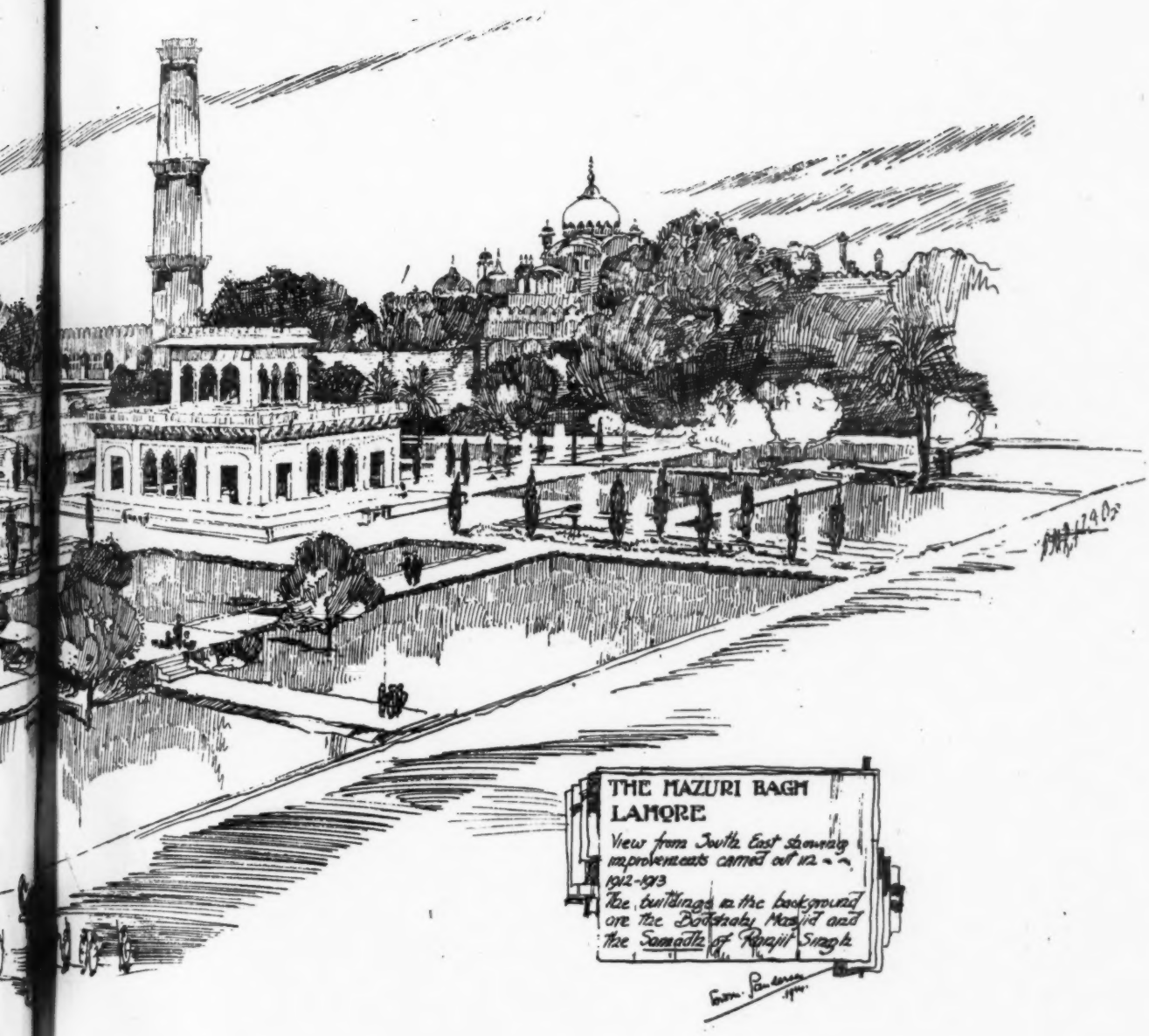

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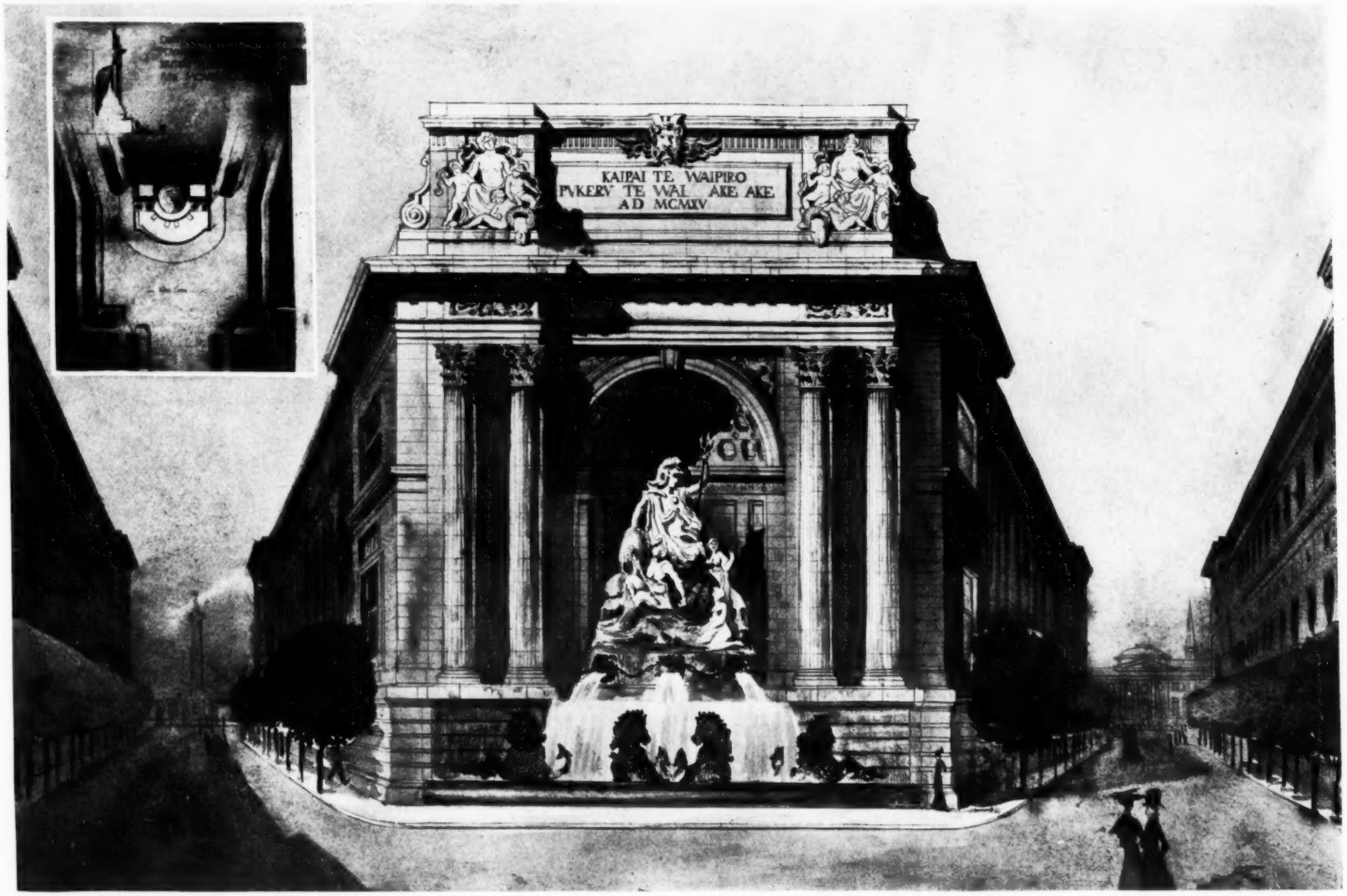
The buildings in the background are the Badshahi Masjid and the Samadh of Ranjit Singh.



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THE SAME AFTER RECONSTRUCTION OF

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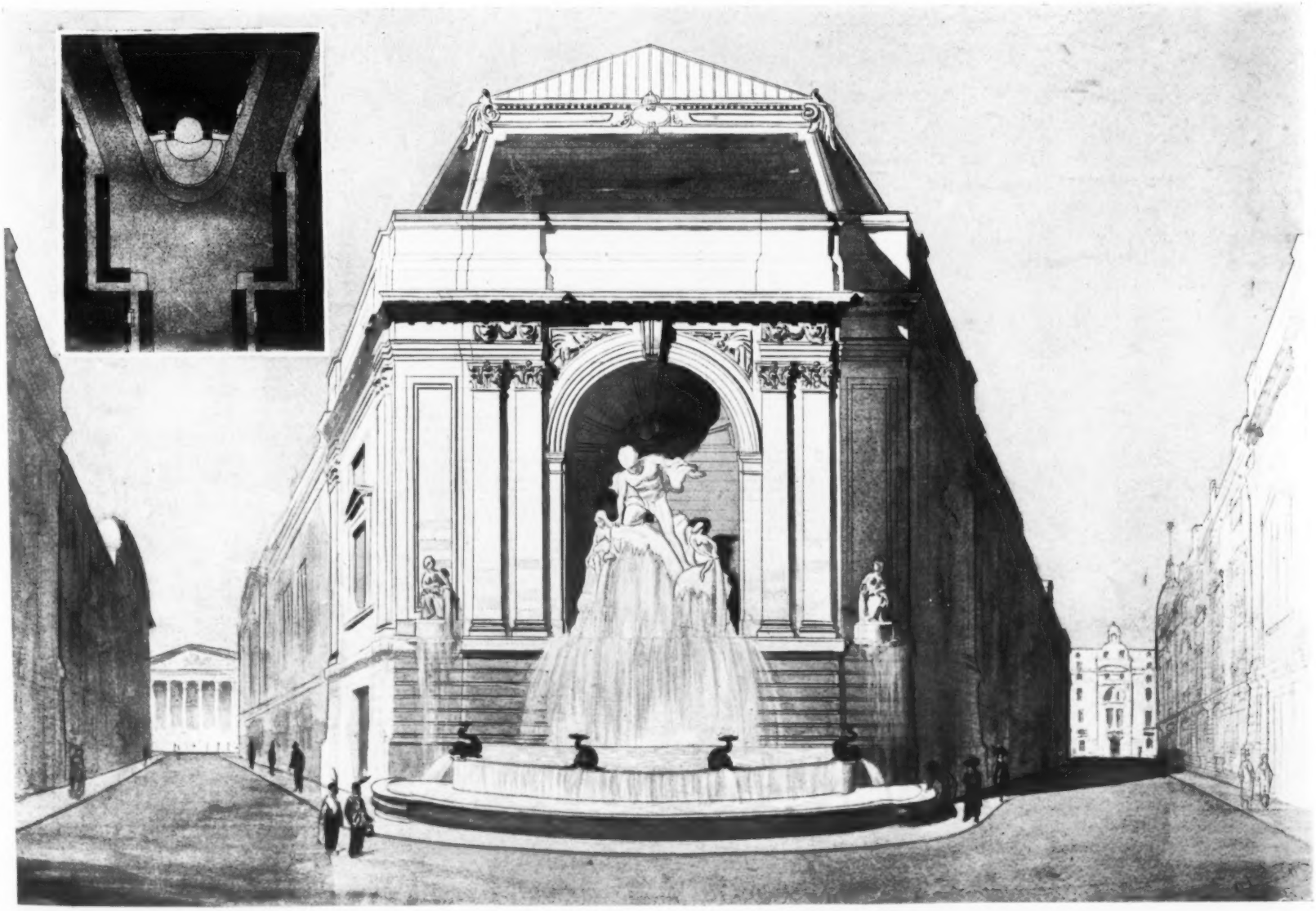

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